
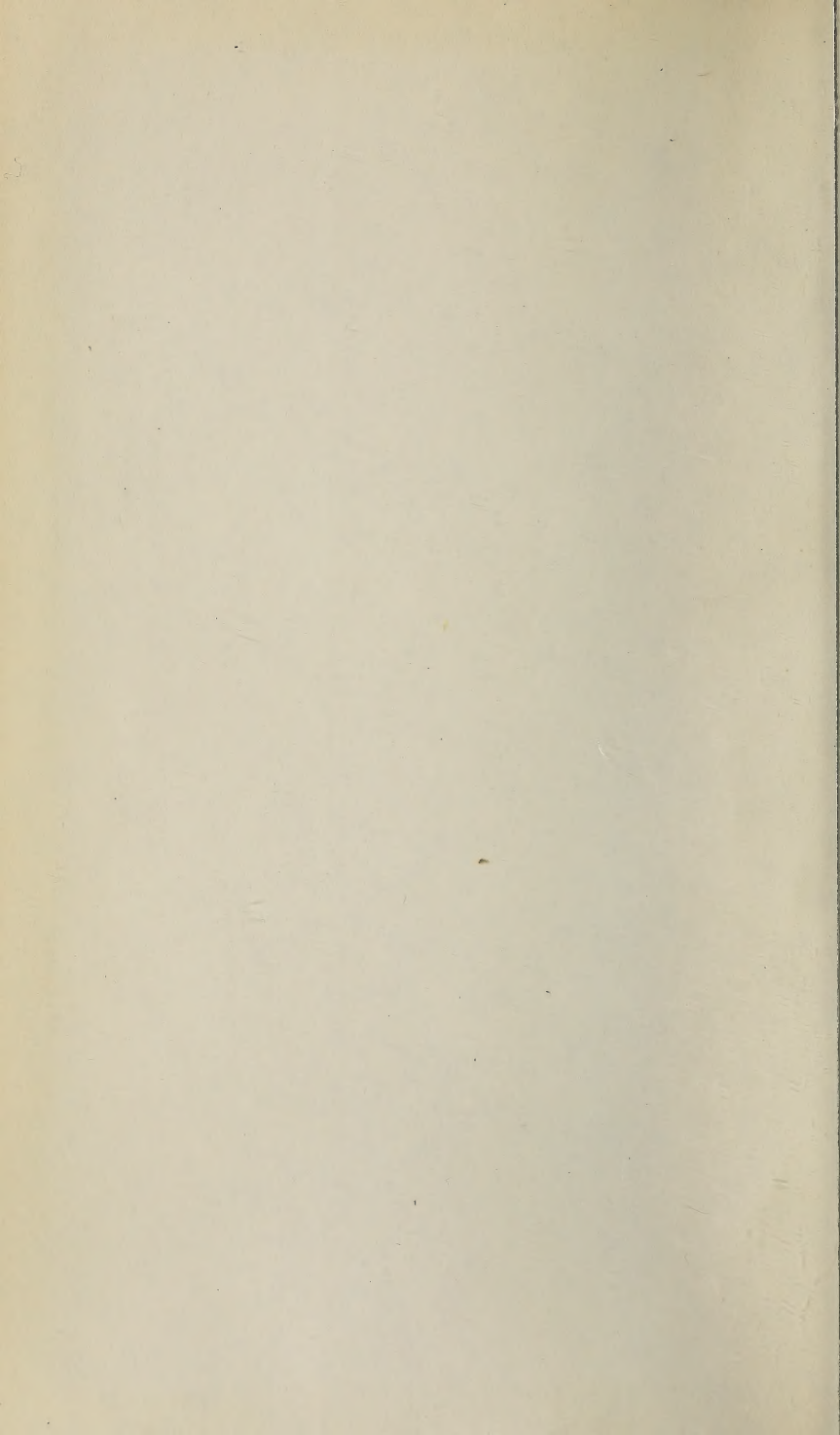




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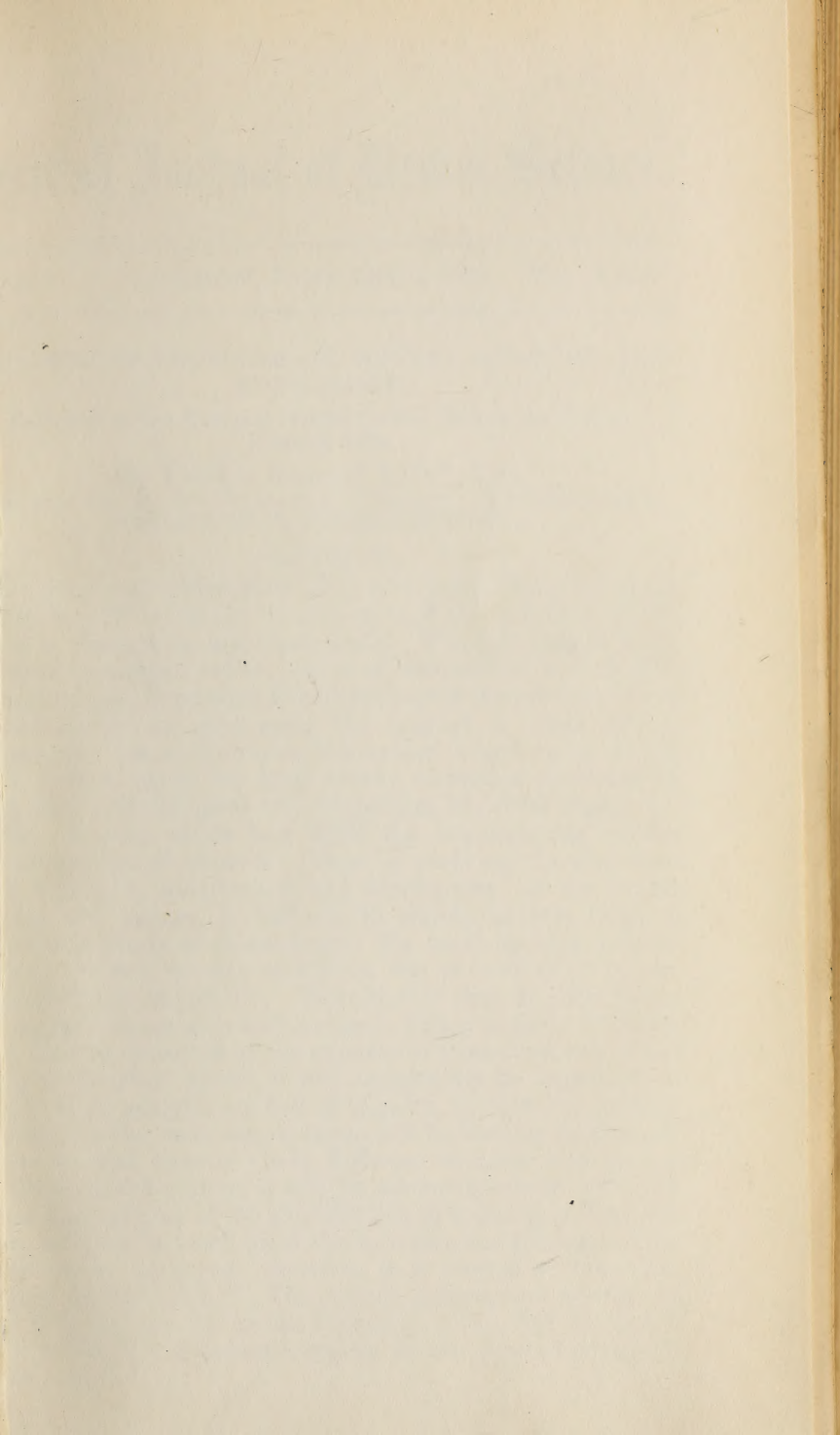
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A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter Session, 1880.

By THOMAS GADDES, L.D.S. Eng.

Lecturer also on the Elements of Histology; Assistant Dental Surgeon to the National Dental Hospital.

LECTURE I.

GENTLEMEN,—Our study of the anatomy and physiology of the teeth will be conducted in a manner which I have considered as perhaps the most systematic. With the endeavour to present the subject before you in as comprehensive and connected manner as possible I shall not regard the presumptuous animal—man—as possessing the typical or ideal dental apparatus; but by surveying the animal kingdom, in which man finds a place, we may obtain numerous examples of progressive development and adaptation of dental organs for those purposes which best fulfil the requirements of the several groups of animals. Then by studying the structure and functions, distribution and development of the dental tissues and organs, I shall aim to supply as best I can, a Synthetic Study of Odontology. To build up this subject strictly in that manner would, in the present state of our knowledge, be impossible. The object of these lectures being to impart information and to teach, rather than to set forth any flowery elocution at the expense of your time and of the duty undertaken by me, it will occasionally be expedient to resort to an analytic method of inquiry, so that our investigation into the more simple forms will be thereby facilitated.

As we shall have to study different members and groups of the animal kingdom, it will be advantageous to give you some general plan of the classification of animals, and the one here set forth is based upon the structure and function of the creatures so arranged; therefore it is termed a “morphological classification.” The orders, genera, and species are not fully worked out in the following tables, but the details will be found sufficiently complete for our present purpose:

SUB-KINGDOM—INVERTEBRATA.			
Sub-kingdom of Invertebrata.	Protozoa	Class Gregarinida.	Order.
	Calenterata	Rhizopoda	Monera.
	Annuloida	Infusoria.....	Amœba.
	Annulosa.....		Foraminifera.
			Radiolaria.
			Spongiida.
			Suctoria.
			Ciliata.
			Flagellata.

SUB-KINGDOM—VERTEBRATA.				
Class.	Order.			
Pisces.	Pharyngobranchii (Lancelot).			
	Marsipobranchii (Lampreys and Hag Fishes).			
	Teleostei (Eels, Pike, Salmon, Trout).			
	Ganoidei (Bony Pike, Sturgeon).			
Amphibia.	Elasmobranchii (Sharks and Rays).			
	Dipnoi (Mud Fishes).			
	Ophiomorpha.			
	Urodela (Siren, Salamanders).			
Reptilia.	Anoura (Frogs, Toads).			
	Labyrinthodontia.			
	Chelonia (Tortoises, Turtles).			
	Ophidia (Snakes).			
Aves*.	Lacertilia (Lizards).			
	Crocodilia (Crocodiles, Alligators).			
	And other six distinct Orders.			
	Odontolegæ—Hesperornis.			
Mammalia.	Odontotomæ—Icthyornis.			
	Ornithorhynchus.			
	Monotremata {			
	Echidna.			
Mammalia.	Marsupialia			
	Edentata. Sirenia. Cetacea.			
Mammalia.	Ungulata ...			
Mammalia.	Placentalia			

* Birds with teeth are arranged in the above two Orders.

The animals lowest in the scale of organisation, which belong to the class *Gregarinidæ* and to the sub-kingdom *Protozoa*, are devoid of mouths and digestive apparatus. They live entirely by imbibition or osmosis; and in the adult state they have not the power of emitting pseudopodia. The animals may be found in the intestine of the cockroach, earth-worm, &c.

In the next class, the *Rhizopoda*, are animals which possess the power of throwing out processes of their substance, as white blood-corpuscles do, and of exhibiting distinct amœboid movement. These processes are called "pseudopodia" or false feet. There is neither mouth nor anus; but by means of the pseudopodia becoming attached to and encircling nutritive particles, and drawing them into its substance, does the animal perform the function of ingestion or feeding. Any part of the surface is capable of performing this function. When a particle of food has passed into the body the aperture by which it entered immediately closes up, and the discharge of solid excreta is effected in a similar manner, except that only one portion of the general surface appears to be limited to this excretory purpose. In the substance of many of these lowly creatures nothing is to be discerned but a mass of jelly-like substance resembling a particle of thin glue.

As we ascend the scale of organisation and come to the higher class of *Protozoa*—the *Infusoria*—there is to be found a mouth, a rudimentary digestive cavity, and an anus. The mouth leads into a funnel-shaped gullet which opens into the soft central mass of sarcode. The food passes into this body substance, and not into any definite stomach, where it is digested. The anus is situated close to the mouth, but is only seen when in use.

In the sub-kingdom *Cœlenterata*, the members of the lower class—*Hydrozoa*—which contains the fresh water polyps, possess a permanent mouth and body cavity, the mouth communicating with the body cavity. In the higher class *Actinozoa*, which includes the sea-anemones, so common in aquaria, there is, in addition to the body cavity, a distinct stomach. The mouth leads into the stomach, which is a wide membranous tube, opening by a large aperture into the body cavity, but there is no distinct alimentary canal nor anus. A Hydrozoon or Hydra, is essentially an open-mouth saccule, consisting of two membranes, an outer or ectoderm, and an inner or endoderm. The majority of these animals seize their prey by means of tentacula, which are processes of those membranes developed either around the mouth or from the walls of the digestive cavity.

The third sub-kingdom of Invertebrata—the *Annuloida*—is distinguished by the animals possessing an alimentary canal, which is entirely shut off from the body cavity. In many members there is an intestine and a distinct anus. The mouth of the sea-urchin is surrounded by a series of calcareous pieces, known as the “oral plates,” while a similar series of “anal plates” encircle the anus. The oral plates consist of five sharp rod-like teeth, which perforate triangular pyramids, and form a singular structure known as “Aristotle’s lantern.” The microscopic *Rotifera*, or wheel animalcules, have a complicated horny masticatory apparatus, with upper and lower jaws.

Included in the next sub-kingdom—*Annulosa*—are the leeches, lobster, insects, &c. The medicinal leech has its mouth surrounded by three crescentic jaws, the convex surfaces of which are serrated with minute teeth. In the crab and lobster some of the limbs are modified so as to form maxillæ and maxillæpeds, the animal, so to speak, masticates with its legs. These are parts of the exoskeleton, or hard, subcalcareous, or chitinous crust, which protects the body. In the lobster one pair of maxillæ are finely dentated, giving the appearance of teeth; the other maxillæ have large tubercles upon them, but they are analogous to the fine dentations on the other pair of jaws. The mouth is provided with two teeth for the comminution of food.

The insects may be divided generally into two groups, the masticatory and the suctorial, though both types may be modified and occasionally combined. The masticatory and suctorial apparatuses are modifications of the exoskeleton, similar to the maxillæ of the lobster. In many insects, the beetle for example, the alimentary canal is highly differentiated, being divisible into mouth, œsophagus, crop, gizzard, stomach, intestine, and anus. The “chewing jaws” in the mouth of the beetle are minute representatives of the nippers of the lobster. Indeed, the mouths of many insects are very complex.

Passing to the sub-kingdom *Mollusca*, in the lowest class—*Polyzoa*, the sea-mats, &c.—the mouth is surrounded by a circle of tentacles, and each tentacle is fringed with long and active vibratile cilia, which lash water towards the mouth. The mouth leads into a long and wide pharyngeal and œsophageal tube, which opens below into a definite stomach. From this is continued a distinct intestine, which bends upon itself towards the oral end of the body, and then terminates upon the outer surface near the mouth. In the higher group of *Mollusca*, in the class *Branchiogasteropoda*—which contains the whelks, periwinkles, sea-

slugs—and also in the class *Pleurogasteropoda*—snails, slugs, &c.—the cavity of the mouth is invariably provided with an organ denominated the “odontophore” or “lingual ribbon.” It consists essentially of a cartilaginous cushion, supporting, as on a pulley, an elastic strap, which bears a long series of transversely disposed teeth. The ends of the strap are connected with muscles attached to the upper and lower surface of the posterior extremity of the cartilaginous cushion; and these muscles, by their alternate contractions, cause the toothed strap to work backwards and forwards over the pulley formed by its anterior end. The toothed strap consequently acts like a chain saw upon any substance to which it is applied; and the resulting wear and tear of its anterior teeth is made good by the incessant development of new teeth in the secreting sac, in which the posterior extremity of the odontophore is lodged. The substance of these teeth is merely chitinous. In certain other *Mollusca* there is also a differentiation of the mucous membrane of part of the alimentary canal to the extent of producing from the walls of the stomach calcareous plates for the trituration of food.

Now, if we pass from the primary division Invertebrata, of which I have given examples, to the Vertebrata, we shall therein find the differentiation of tissues for dental purposes of much higher types of complexity as regards form, structure, and distribution.

When an invertebrate animal possesses organs of mastication, these are either hard productions of the alimentary mucous membrane, or are modified limbs. In no vertebrate animal, on the other hand, are limbs so modified and functionally applied, the jaws being always parts of the walls of the head specially metamorphosed, and totally distinct in their nature from the limbs.

If we consider the teeth of the lowest class of vertebrata—fishes—we shall find, not only as regards substance, but as to their number, form, structure, situation, and mode of attachment, that they present more various and striking modifications than do the teeth of any other class of animals.

The *Pharyngobranchii*, or lowest order of fishes, includes only the Lancelot. This fish has no skull nor jaws, the mouth being surrounded by a cartilaginous ring composed of many pieces.

The next order, *Marsipobranchii*, includes the Lampreys and Hag-fishes. These animals have a cartilaginous skull, but no mandible or lower jaw (Huxley), and are destitute of true calcified or dentinal teeth, the armature of the mouth consisting of horny cones or serrated plates. The labial

opening of the mouth of the lamprey is like the concavity of a cone, and is covered with converging rows of horny teeth. The palatal cartilage carries a tooth which is generally bicuspid, and this is opposed by a semilunar horny plate, with which the cartilage representing the lower jaw (Owen) is sheathed. There are also lingual horny plates. In the hag-fish, which is of parasitic habits, *i. e.* living upon the bodies of other fish, there is a single tooth in the median line of the palate, and a double serrated horny plate on each side of the upper surface of the tongue. The hag-fish uses this single tooth as a means of anchorage or holding on to the animal upon which it preys.

In the third order—*Teleostei*—are included almost all the common fishes of our seas and rivers. The skeleton is more or less ossified, and the term “osseous fishes” was employed by Cuvier to designate nearly the same division as the *Teleostei*. The herring, common pike, carp, salmon, trout, cod, sole, and turbot, are members of this group. The pipe-fish and sea-horse, or hippocampus, are edentulous, while others, as the pike, have numerous teeth upon the bones of the mouth and pharynx. The structure of the teeth also indicates a high degree of development.

The *Ganoidei*, or fourth order of fishes, possess scales, plates, or spines, which are composed of an inferior layer of bone and a superficial covering of enamel, termed “ganoin.” The skeleton in some instances is cartilaginous, in others it is more or less calcified. In the sturgeon the vertebral column is cartilaginous, and the mouth is destitute of teeth. The bony pike, on the other hand, has an exceedingly well ossified vertebral column, and the jaws are long and carry a double row of teeth.

The fifth order—*Elasmobranchii*—includes the Sharks, Rays, and Chimæra, and corresponds with the greater portion of the cartilaginous fishes of Cuvier. The notochord, or embryonic structure which represents the vertebral column is not persistent or undivided, as in the two lowest orders—*Pharyngobranchii* and *Marsipobranchii*—but is generally separated into vertebræ more or less distinct. The vertebræ and other bones are “cartilaginous” in the interior, having an osseous crust only. There is a lower jaw, but the skull consists of a single cartilaginous box. In the sharks and rays the mouth is placed on the under surface of the head, and it is transverse, hence the name *Plagiostomi* given to the sub-order. Here the teeth are carried only upon the cartilages of the upper and lower jaws, except in the sawfish, where the rostral cartilages also are excavated by deep sockets, which contain teeth.

The last order of fishes, the *Dipnoi*, includes of living forms only the Mud-fishes. The mud-fishes, though fish-like in form, possess many characters which make up a connecting link between fishes and amphibians. The mud-fish has distinct cranial bones and a lower jaw. The dental system is also somewhat peculiar, there being two molar-like teeth in each jaw, and two conical sharp-pointed teeth on the intermaxillary bone or vomer.

The chief distinguishing character of the class *Amphibia* is that the young animals are water-breathing creatures, but in the adult state they breathe air by lungs. There is a bony skeleton, and true jaws and teeth. This class comprises the Frogs, Toads, and Salamanders.

The class *Reptilia* includes the Tortoises, Turtles, Snakes, Lizards, and Crocodiles. In these different animals there is great diversity in the dental apparatus. There is the edentulous tortoise, the sly viperine snake, the ferocious and formidable alligator. When we come to consider "the distribution and form of teeth," I shall then revert to certain members of the reptilian class, particularly the ophidians or serpents, as presenting undoubted examples of the intermediate stages in the transition from the non-poisonous to the viperine dentition.

The fourth class of vertebrate animals is that of *Aves* or birds. The beak consists of an upper and lower mandible. These are horny structures which, in all living birds, are devoid of teeth.

In birds we observe the mouth adapted in the best possible manner imaginable for rapidly picking up small grains of food. To avoid their enemies they must necessarily take up that food so quickly that time for mastication is not permitted. As a result of the quantity habitually taken there has been produced a dilatation of the upper part of the alimentary canal, this dilated portion being called the "crop." Thus, the food being rough and unmasticated, the mucous membrane and the muscular walls of the alimentary canal are thereby subjected to different influences or forces than they would be if such food were less hard or more masticated. These forces, viz. the action of rough and unmasticated food, necessarily lead to such a differentiation of the mucous membrane and of the muscular walls as fit that part of the alimentary canal for triturating the food, producing upon the mucous coat a ridged and tuberculated layer of horny matter, and also an excessive development of the muscular tunic. These conditions we find in the gizzards of birds.

In addition to these modifications, small stones or pebbles,

which granivorous birds are in the habit of swallowing are contained in the gizzard and facilitate the proper grinding of the food. It is also to be observed that the gizzard of a granivorous bird is more highly developed than is the gizzard of a carnivorous or flesh-eating bird. Thus, in birds having no masticating apparatus the internal functions are specialised, and the crop serves as a reservoir and macerating sac, while the gizzard serves as a chamber to triturate. Hunter habituated a sea-gull to feed upon grain, and found that the lining of its gizzard became hardened, while the gizzard muscles doubled in thickness, thus approaching the conditions of a granivorous bird.

All known extant birds are devoid of teeth; but a few fossil specimens prove that there have existed birds with these organs. For these a new sub-class has been adopted for such birds—*Odontornithes*. Some of these have true teeth, with curved crowns and thick roots which, as in *Hesperornis*, are lodged in a common groove. Another specimen (*Ichthyornis dispar*) possesses true teeth ($\frac{4}{4} \frac{0}{0}$) lodged in distinct sockets. But, apart from fossils, Geoffrey St. Hilaire discovered in a fœtus of a paroquet, nearly ready for hatching, that the margins of the bill were beset with white and round tubercles, and under each tubercle there was a gelatinous pulp, supplied with vessels and nerves like that of a tooth. All these are very important facts, inasmuch as they serve to link birds with reptiles, thus showing their true place in the animal kingdom, and supplying such data as the study of evolution teaches us to expect.

Coming now to the highest class of Vertebrata, that of *Mammalia*, we reach the chief zoological area of our studies. The characteristic of this class is that the young are nourished by milk secreted by mammary glands. Some few mammals are edentulous, but in the great majority teeth are present. In the duck-mole the teeth are of horny structure, but in all other mammals which have teeth the teeth have the ordinary gelatinous or tooth-cartilage basis. In some instances both the structure and form of the teeth are comparatively simple, while in others they are very complex. We shall see, by-and-bye, what forces or agencies are to be considered as causes in producing these modifications; but what I desire you now to observe is, that in the Vertebrata all teeth are alike developed from a part of the mucous membrane of the alimentary canal. Whether the structure of the dental tissue will be comparatively simple or complex, whether it resembles the ordinary structure of the bone of the animal, or of a lamination of hardened scales, or whether it be of a distinct and special structure, as true dentine or

enamel, the tooth tissue is homologous with the mucous membrane. By homology is meant that relation between parts which results from their development from corresponding embryonic parts—almost a similarity of origin. This relation of the teeth to the mucous membrane is termed general homology, and the relation of one tooth to another (as a canine to a premolar) is serial homology. To illustrate the terms in another way:—Flowers of plants are modified leaves, they are both developed from the same embryonic structures, and therefore the one is the general homologue of the other. And again, the different parts of a flower—as the petals, the stamens, the pistil—are instances of serial homology.

Let me here explain to you another term you will frequently meet with, viz. morphology. Morphology is the law of form or structure, and is said to be the very soul of natural history.

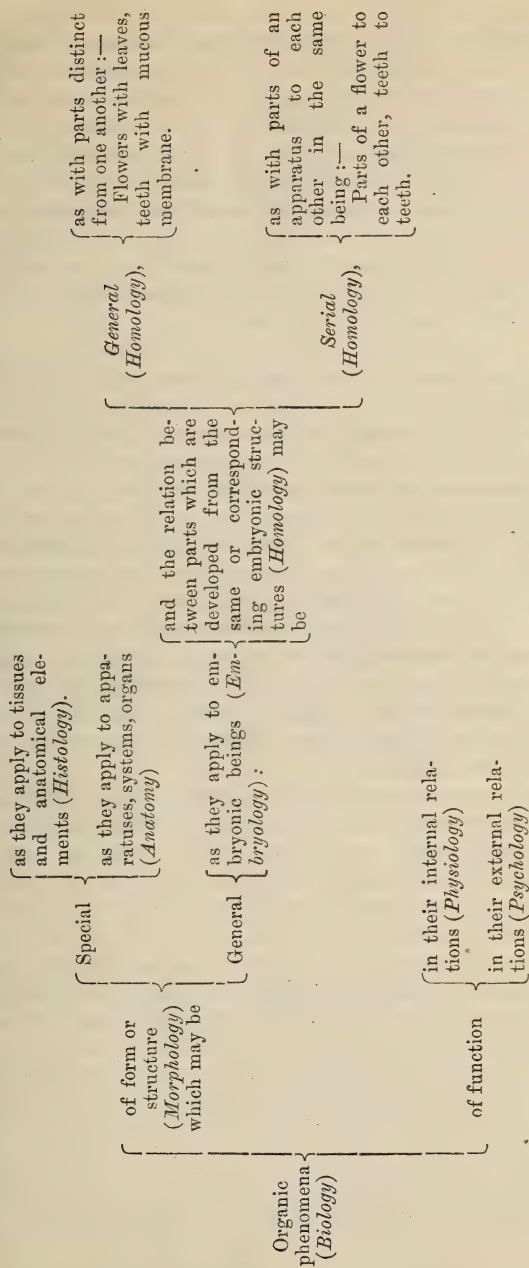
I here represent, in a tabular form, as well as I have been able to think out, the relations between these several branches of concrete science springing out of biology. The table also gives a definition of each science, though necessarily of an abstract form.

The teeth of *vertebrata* are modified or differentiated mucous membrane, a consequence of a further integration of matter by that tissue. They are the general homologues of mucous membrane—a result of morphological and physiological development.

Such would be an explanation of the genesis of teeth according to the principles of evolution. For an explanation of the genesis of teeth, of the multiplicity in number, form, and structure of teeth, as well as for the genesis of organisms, the multiplicity of parts, and the complexity of those parts in organic aggregates—in short, for an explanation of the differences between organisms—there are two main hypotheses. First, that the different and various forms were created by a direct and special interposition of the Creator; secondly, that such organic phenomena were produced by the agency of the environment, that is, by physical forces, working upon susceptible matter during time of which we have no conception.

Suppose a mass of homogeneous structureless organic matter termed protoplasm, and you mentally represent roughly an analogue of a primordial utricle, or, if you please, first created organic mass. The characteristic of such mass is constant susceptibility to change in the form of integration of matter, or of disintegration of matter, such characteristic being expressed by the “instability of the homogeneous.”

Table Showing the Relations and giving a Definition of Several Branches of Biology.



This instability of organic matter is due to its chemical composition. The homogeneous becomes heterogeneous; or, in other words, the simple progresses towards the more complex. The simplest organic matter possesses this characteristic property. By its working slight differences are produced, and by the slow accumulation of modifications upon modifications, and by slow divergencies resulting from the continual addition of differences to differences, are produced all organic forms. To reduce this to a practical expression, it can be said that the differences between one animal and another are due to additions and suppressions of parts.

In the changes of the physical forces, ever in progress, are to be found the inorganic factors to which all organisms are exposed in the process of evolution. These *external* factors can be grouped as astronomic, geologic, meteorologic, and organic. As *internal* factors in the process of evolution are the several agencies grouped as "natural selection."

By the action of those external factors, and of those internal factors, upon unstable homogeneous matter—*i. e.* matter ready for change—are differences produced. Difference is added to difference, and the result produced is that degree or accumulation of difference termed variety. Variety is simply a less definite expression of species, and species a less definite and more special expression of genus; and so on, genus of order; order of class; class of sub-kingdom; sub-kingdom of kingdom. (Refer to the tables of Morphological classification.)

These are expressions of a classification of different groups of organic phenomena, it may be, in their extremes, broadly contrasted from one another, but shading off one into another. "Evolution being a universal process, one and continuous throughout all forms of existence, there can be no break, no change from one group of concrete phenomena to another, without a bridge of intermediate phenomena."

In short, by the same agencies which produce differences, by the same mental process through which we pass to establish or mentally represent those differences, by precisely the same agencies acting through time, and by precisely the same mental process carried farther, do we necessarily and inevitably arrive at the conclusion that varieties and species are so produced—that species are mutable.

Admit the mutability of species, and by the same mental process do we necessarily admit evolution as applied to the animal kingdom, to the vegetable kingdom—to the organic world.

To give a general expression to the causes of evolution, it

may be stated that the forces acting upon organisms are multiform, and ever undergoing slow variations and complications; that the organic units are extremely unstable, and the slightest variation in their conditions destroys their equilibrium, and causes them either to assume altered structures, or to decompose; that the multiplication of effects conspires with the instability of the homogeneous to work an increasing multiformity of structure in organisms.

Such is a brief, a much too brief, exposition of organic evolution.

To the phenomena grouped in and expressed by evolution—"or the integration of matter and disintegration of motion, a necessary antecedent to the differentiation of matter so integrated"—I say, by evolution only can a scientific explanation be given of the complexity of organisms, this necessarily including differences of structure and function of tissues, of structure, and function of animals. Remembering what I a little while ago impressed upon you, that in the vertebrata all teeth are developed from a part of the mucous membrane of the alimentary canal, and that they consequently are generally homologous with the mucous membrane; remembering this, and by the application of the factors of evolution will the differentiation of that tissue for dental purposes be comprehensible. In other words, with time and evolution are symbolically comprehensible the production, in successive generations, of such specialised tissues for dental purposes as horn, bone, cementum, osteo-dentine, vaso-dentine, plicidentine, true dentine, and enamel.

The morphological or structural relations of those tissues I shall proceed to consider in my next lecture.

Dental Surgery and Medicine.

GOLD VERSUS AMALGAM FOR FILLING TEETH.

By J. J. MUSGRAVE, Esq., L.D.S. Glas.

It has been my lot to see the appearance of many dentures entirely spoilt by the insertion of unsightly amalgam plugs into the front teeth; in many of these cases I have taken them out and refilled the cavities with gold, greatly to the satisfaction of the patients. What is the reason why so many of our English practitioners entirely overlook the art

of gold filling? Is it that they lack the opportunity to master the details necessary for success in this operation? In many of the cases above referred to, in which amalgam was used, it was not because the patient objected to pay a suitable fee for a gold filling, so I concluded that it was from lack of skill on the part of the operator.

As regards the comparative value of the various materials for filling teeth, I am fully convinced in my own mind that gold is the best for the average run of cases, provided the operation is well performed. In my own teeth I have had twenty-five fillings inserted, some of them being stopped in two places. A central and a lateral incisor were filled in 1869 on their mesial surfaces with gold, and in 1873 on their distal surfaces with amalgam. The gold fillings are intact at the present time, whereas the amalgam plugs have failed to prevent the further decay of the cavities in which they were inserted, and with a few exceptions nearly all the other amalgam fillings have had to be renewed that were inserted at the same time.

Since the introduction of the burring engine, the rubber dam, and the automatic mallets, gold plugs can be inserted rapidly and well. Using the "Globe Semi-cohesive" foil, or "Pack's Crystal Pellets," and having two "Richmond Mallets" at work (to save loss of time by changing points), and the bracket table conveniently near the patient's mouth, we can dispense with a great many of the tedious operations of former days, when gold filling was a thing to be dreaded.

I should like to say a few words in defence of that invaluable adjunct to the operating room, the "burring engine." Many old practitioners have told me that they would not use one on any account, and that they had heard dreadful tales from their patients of the tortures inflicted on them by this machine. I have, however, succeeded in convincing nearly all of them that it is only the clumsy use of the engine, or else the fault of badly-constructed hand-pieces, that has brought so much discredit on that, by me, much-valued assistant. The hand-piece of my engine is one of the simple old-fashioned ones, and it runs so smoothly that I have frequently had patients who have previously been operated on by practitioners of repute exclaim, "Your drilling machine does not give me nearly as much pain as Mr. —'s did." It is my custom with patients who disclaim against it to give them a trial with the old hand burr rotated with the thimble, and then use the engine, and ask them which gives them the most discomfort, and the invariable reply is, "I like the machine the best." My hand-piece being small, and with all its parts fitting well, permits of no

rattling or wobbling of the drills; and I am most careful to keep it free from rust and grit by means of india-rubber shields and plenty of oil, and also make a careful selection of my burrs, and by not using them too large for the cavity avoid most of the unpleasantness usually complained of.

1, St. Domingo Vale, Liverpool.

[Mr. Musgrave speaks of "English Practitioners" as if the abuse of amalgam to which he refers was general. Here, in London, it does not, so far as our observation enables us to judge, prevail to the extent which appears to be the case in Liverpool; but no doubt the rules of practice vary somewhat in different parts of the country. We should be glad to have reports on this subject from other provincial centres. —ED. 'B. J. D. S.']

Mechanical Dentistry.

WHAT ARE THE ADVANTAGES OF CELLULOID?

By W. HODGSKIN HOPE.

It is almost amusing to notice the strenuous and repeated efforts put forward by our American friends to induce English Dentists to use this extraordinary compound. Many have been the articles and letters which have appeared from the believers in, and supporters of, this material; but to my mind in none of them can be detected sufficient reasons given, and advantages held out, for a partial or wholesale departure from the use of vulcanite.

English Dentists want real and *bonâ-fide* reasons, and evidence of some practical gain as well, before they will subject their patients to a series of experiments, and allow their own reputation to be unsettled by the introduction of anything new, when excellent results have always been obtained by means already at hand. It is a mistake to suppose that because celluloid is not more universally used it has not had a fair trial. A fair trial has been granted it by very many, with the result of banishment from the workroom for evermore.

At the outset, it is an open question whether the prin-

ciple upon which such a material is worked is not radically wrong. For, even in the diversified working of vulcanite, every Dentist is familiar with difficulties innumerable occurring constantly, that would be greatly magnified were such a substance as celluloid to be substituted. In fact, its inadaptability to most cases, the extreme care required in working it, and the extra amount of trouble entailed, have proved a detriment, and will remain as lasting reasons why celluloid can never have the future before it which is fondly imagined by its champions. Although our manipulations of plaster may be by no means perfect, we are yet enabled as a rule to work it at great advantage under our present system. But even at its best, a risk is always imminent when closing up, from the fact that the pressure is so often brought to bear upon isolated portions of the plaster. Even with vulcanite (which can be packed with the utmost precision) breakages and misplacements frequently occur; and it seems obvious, that our object of insuring freedom from accidents by distributing the pressure over the whole surface, is in no way helped forward by the introduction of a material which, in addition to having nothing to recommend it that belongs not to vulcanite, has for its working principles which may be said to be opposed to all known laws of mechanics. But once let its superiority to rubber be clearly proved, and nothing in the world can prevent it eventually taking its place.

Wellingborough, Dec. 18th.

AN ANNOYING ACCIDENT.

I SUPPOSE that others besides myself have experienced the following accident:

Flat teeth having been soldered to a plate, one of the teeth during the process of finishing falls away from its back—or, it may be while inserting the case in the mouth, the accident happens—unaccountably. There is no sign of weakness about the tooth; it comes away bodily, the pins having given way flush with the mineral where they enter the metal back. The appearance of the platinum at the point of fracture is like that of broken steel, and might give one the idea that some corrosive agent had done the mischief.

What is the cause of this accident? I have observed in all cases which have come under my own notice that solder had found its way through the back, and more or less.

covered the surface of the gold next the back of the tooth. Might not this solder when the case cools act as a wedge between the metal back and the tooth, and so wrench the one from the other? For suppose that a back is fitted accurately to a tooth, on heating the case highly the parts will expand and become freer, and so allow access to solder either through by the pins or by the junction of the plate with the back. When the case cools the parts naturally return to their former positions, but the solder erupted inside the back prevents this, hence the strain upon the platinum, which at last gives way, and the tooth drops off. The appearance of the platinum leads one to the conclusion that it has been subjected to some outward strain, and it would be satisfactory to discover its cause. Perhaps some of your readers could throw some further light upon this matter.

I may say that lately I have specially guarded against the possibility of solder making its way through as described, and I have not since met with the same accident. Sufficient time, however, has not transpired to test whether the method adopted has prevented the evil.—SCHWALBACH.

British Journal of Dental Science.

LONDON, JANUARY 1, 1881.

IN turning over the pages of the volume we have just completed, our readers cannot fail to be struck with the prominence which is given to the subject of Anæsthetics. Amongst the numerous articles on this subject which appeared in this Journal during the past year we would in particular recall to our readers' recollection the abstract of the "Report on the Action of Certain Anæsthetics," drawn up by a committee of the British Medical Association, which appeared in our issues of August 1st and September 1st—the full text of this valuable report will be found in the 'British Medical Journal' for December 18th—and the excellent *résumé* of the whole question, entitled "Anæsthetics, their Position and Prospects," for which we were

indebted to the American 'Quarterly Journal of the Medical Sciences.' Few will, we feel sure, find fault with our conduct in this respect. As one of the reviewers of Dr. Rottenstein's work on 'Surgical Anæsthesia' recently remarked—"This subject has always been one specially interesting," and he might have added, of the greatest practical importance, "to Dentists, since they, among professional men, are most frequently called upon to perform minor surgical operations of a very painful character, and in which people in general are especially glad to have the advantage of anæsthesia." Nor, as the same writer points out, has this interest been barren of practical results. "It is to a Dentist that we owe the discovery of anæsthesia by ether, and to Dentists also we owe the introduction of protoxide of nitrogen as a surgical anæsthetic."

Or, if any should be inclined to grumble at the amount of space which we have devoted to the consideration of this question, which after all is but an adjunct to the actual business of our profession, we have at least the excuse that we have sinned in good company. It has indeed been the topic of the day, and so numerous and important have been the references to this subject in the current medical literature that we have had the greatest difficulty in keeping our readers informed of the most important phases of the question.

The last of these may be said to be a vigorous charge of the anti-chloroform faction. The columns of the 'British Medical Journal' have long afforded these gentlemen a vantage ground, and here the "*Ether versus Chloroform*" controversy has been raging for weeks past, varied by a slight skirmish over Dr. Ernest Jacob's "*Chloroform Death Bill*" letters in the pages of the 'Lancet.' Quite recently the editor of the 'British Medical Journal' has published a tabulated list of all the published deaths from anæsthetics which have occurred in this kingdom during the last eleven years, viz. from December, 1869, to December, 1880. In all, 148 fatal cases are here recorded; of these 120 were due to chloroform, 11 to ether, 7 to chloroform and ether jointly, and 10 to bichloride of methylene.

It should be noted, first of all, that some of these deaths were only indirectly due to the anæsthetic used; thus, there are four cases in which the patient was suffocated by foreign matter in the trachea, and in others the patients were in a state of collapse at the time of the operation. Then there are among the chloroform cases four in which the drug was self-administered; it is plainly as unjust to use these to swell the charge against chloroform as it would be to disparage the value of opium because laudanum is occasionally used for suicidal purposes.

It is constantly alleged by the anti-chloroformists that, in estimating the total number of deaths from this cause, the *published* deaths must be supplemented by a large number of *unpublished* ones. During the early days of the movement this statement appeared to be reasonable, but during the last four or five years public opinion has been so roused that we believe it is scarcely possible for a case to escape the notice of the press. We may, therefore, take the record for the years 1875-80 to be fairly accurate, and we find that the deaths under chloroform were: in 1875, ten cases; in 1876, ten cases; in 1877, ten; in 1878, ten; in 1879, ten; and in 1880, thirteen. Amongst these there is a case of suicide, and another of asphyxia not specially chargeable to chloroform. We need only add that Dr. Jacob, of Leeds, one of the foremost champions of the anti-chloroform party, admits that each fatal case represents not less than 3000 successful administrations. From these figures our readers may judge for themselves how far the editor of the 'British Medical Journal' and his following are justified in their openly-expressed opinion that a verdict of manslaughter in any of these cases would be a meritorious and public-spirited act on the part of a coroner's jury.

To a certain extent we are all anti-chloroformists; we all fear and distrust it, and should hail with delight the discovery of a more reliable agent. It is said that we have this in ether, and to a certain extent this is true. But the use of ether is attended with great disadvantages, especially for operations in the mouth and when administered by inexperienced hands. The fact that the majority of the medical men

now practising in England were educated to the use of chloroform, and have had experience only in its use, is a point which should, we think, carry more weight than the extreme anti-chloroformists are disposed to give it. We do not doubt the good faith of these gentlemen and we approve of their aims, but we believe that in attempting to force professional opinion by threats and hard words, and by generally over-stating their case, they have done not a little to hinder a cause which is at bottom a good one.

Any number of *preventible* deaths, however small relatively to the number of persons benefitted, is terrible, and if any one of the new agents now on their trial should prove to be free from the risks of chloroform and the scarcely less serious disadvantages of ether, it will certainly be adopted in preference. But the grounds for this preference must be fairly and reasonably stated, and no good can be done by calling those whose opinions or experience may differ from our own hard names. Meanwhile, Dental practitioners should be more than ever careful to confine themselves as much as possible to the use of nitrous oxide; where the assistance of some other anæsthetic is absolutely necessary, they will best escape responsibility by leaving the choice to the discretion of the medical attendant.

Literary Notices and Selections.

HYDROBROMIC ETHER, OR BROMIDE OF ETHYL, AS AN ANÆSTHETIC.

By LAURENCE TURNBULL, M.D.,

Aural Surgeon to Jefferson College Hospital, Philadelphia.

THE following spirited defence of the value of hydrobromic ether as an anæsthetic, from the pen of Dr. Laurence Turnbull, the American physician who has tried so hard to get it generally adopted, appeared in the November number of 'the Specialist.' Whether Dr. Turnbull will succeed in

removing the suspicion with which this agent is now regarded in consequence of the accidents which have attended its use remains to be seen.

Hydrobromic ether or bromide of ethyl was discovered by Serullas in 1827, but received no special attention until Dr. Thomas Nunnelly, of Leeds, made some experiments with it on animals in 1849. Dr. Nunnelly brought the subject again before the profession, by a paper read at the meeting of the British Medical Association in 1865, in which, in conjunction with another anæsthetic, he says he had employed the one or the other in all the principal operations at the Eye and Ear department of the Leeds General Infirmary. This was at the time when chloroform held such complete sway in England that no importance was attached to Nunnelly's experience or experiments, and he had no one to follow him in using it, and we hear no more of it until 1876, when some experiments were made with it in France by Rabuteau on the lower animals, but evidently without a knowledge of the fact that this had been done previously in England by Nunnelly.

I then took the agent up, without the knowledge of the experiments of Dr. Nunnelly, of England, and had it made in Philadelphia by Professor Remington, and, with two friends, began experimenting in September, 1877, using it first on myself and then upon my patients. After satisfying myself as to its efficiency and safety as an anæsthetic, I laid the subject before the Pennsylvania State Medical Society in 1878, and a record of ten cases, with my conclusions, which were published in the volume of their Transactions for that year. In August, 1879, I brought it before the British Medical Association at Cork, and in September of the same year I presented a report of one hundred cases before the International Medical Congress at Amsterdam (to which I was a delegate from the American Medical Association), up to March, 1879, when the second edition of my work on anæsthetics went to press. I had published a report of twenty-five successful cases, in quite a variety of surgical operations, and had not only employed it at my daily ear clinic, but also in the Jefferson Medical College Hospital, and administered it in April, 1879, to a patient of Dr. Samuel W. Gross, at the public clinic, when he (Dr. Gross) removed a hyoid cyst in front of the neck of a child. Dr. R. J. Levis, who was at this clinic, for the first time saw it employed, and became much interested in its use.

I thus compelled chemists to make it, by producing a demand for it, and gave them, through Dr. Green, a good

formula free from phosphorus; I interested surgeons all over the country to try it, and especially the surgeons of this city, by bringing it in every way before their attention. Subsequently the whole number of cases in which it has been employed by myself and friends up to the present time, June 1880, will number some eight or nine hundred.

I cannot but feel disappointed that two deaths, not produced by it, should have been associated with it,* as such accidents will be employed by those having a prejudice against the ether, to condemn it on theoretical grounds. It is my firm conviction that, although in several instances recently the use of this anæsthetic has been attended with persistent vomiting, in the hundreds of cases in which it has been employed, chiefly in Philadelphia, in not one single instance has it caused cerebral trouble, or any of the symptoms produced by the action of free bromine, which are as follows:—When dogs are confined in an atmosphere of bromine vapour they suffer a profuse secretion from the eyes, nostrils, and fauces, with cough, hoarseness, dyspnœa. I have experimented upon frogs, cats, dogs, rabbits, and various other animals, by subjecting them to an atmosphere highly charged with the vapour of hydrobromic ether, and in no instance was there the slightest irritative effect as described above.

“Philadelphia, June 2, 1880.

“Deputy-Coroner Beam made an investigation of the circumstances, as reported in the ‘Times’ nearly a week ago, into the death of William Linderman, eighteen years old, of Schuylkill county, while upon the operating table at the Jefferson College Hospital on Wednesday last, under the influence of the new anæsthetic, bromide of ethyl, and about to be treated for stone in the bladder. He had been about sixteen weeks under the care of Dr. R. J. Levis, one of the strongest advocates of the new anæsthetic, and was taken to the hospital by his direction. Linderman’s health was very poor at the time. Dr. Ames, who applied the bromide, said no incision had yet been made, but Dr. John B. Roberts said it had. The patient was in such a condition that something had to be done, because he could not tide over the hot weather (96°—98° in the shade).

“Dr. J. G. Lee, the coroner’s physician, testified that he found the brain congested, *the lungs far advanced in consumption, and the kidneys and liver enlarged*, and two large encysted stones in the bladder. His opinion was that they could not have been safely taken out. *Linderman could*

* “The Bromide of Ethyl as an Anæsthetic,” by Marion Sims, M.D., LL.D., ‘New York Medical Record,’ April 3, 1880.

not have lived over a week or two at any rate. Dr. Lee said further, that he had experimented with the bromide on animals without bad results. In his opinion death resulted from exhaustion and prostration, the result of phthisis. The jury took the same view in their verdict."

In subjecting the new anæsthetic to this most severe test, we do not think our friend Dr. Levis was doing justice to it, knowing the extreme debility of the patient, and that the most simple nervous shock would render him liable to death. Hundreds of patients have thus died. Again, when ordinary ether, chloroform, or other anæsthetics cause fainting, which was no doubt the result in this case, artificial respiration has to be resorted to; now, we were reliably informed that when this useful means was resorted to by alternating and relaxing the chest walls, *the pus which was in this man's lungs was forced into his bronchial tubes and suffocated him.* Again, we are very sorry that the valuable agent, nitrite of amyl, which has been found useful in such cases, was not employed.

In some recent experiments on animals, I crowded four ounces (the quantity stated to have been used by Dr. Sims) upon a dog for several minutes, by means of a tin inhaler, until he became apparently dead, with no perceptible action of the heart or lungs, but his expression of eye was clear, and the pupil was dilated, while there was no secretion from the eyes or nostrils. The apparatus was removed in the space of four minutes, and he was exposed to the air, when at once he began to breathe, and, by the end of six minutes, he had almost entirely recovered consciousness.

The dog did not seem much inclined to move for ten or twelve minutes afterwards. While this dog was only partly under the influence of this anæsthetic, having at first caught the inhaling apparatus with his under teeth, there was a good deal of rigidity, and slight tetanic movements of the extremities, but this was overcome by the free use of the ether. Now, had we been using chloroform, just before we should have been ready to perform any experiments upon the animal he would have been dead, and no removal of the anæsthetic, nor the introduction of atmospheric air, would have been of any avail. Again, if Squibb's rectified and absolute ether had been employed, we must have super-saturated the animal, and been annoyed by the expectoration of large quantities of mucus. Then we frequently have seen tetanic convulsions, requiring several assistants to hold the patient, with great reduction of temperature, from the use of ordinary ether. The rapidity of the anæsthetic action of hydrobromic ether, and its rapid elimination from the system by the lungs, are

two of its chief merits for all operations that are not prolonged. If an operation is to be very tedious, and requires from one to two hours, we would advise the additional use of purified sulphuric ether to the anæsthetic. *We would therefore recommend pure hydrobromic ether in operations not lasting over forty minutes.* There is one great advantage in the use of this agent—that the administrator must attend to the anæsthetic all the time; he cannot watch the operation, and forget the patient for a few seconds; his whole attention must be given to keep up its action. We have often felt sure that the wet napkin, from the water, in the ordinary ether pressed over the patient's mouth by the weight of the body of the persons giving the ether, and watching the operation, were the indirect causes of the death of the patient. Within the last few days we have employed it in labour for the second time, and it has peculiar advantages in that it is so rapid in its effects, and the patient is comforted between the pains, but never passes into such a state of profound anæsthesia, that she is aroused by the expulsive effort, and has all her consciousness about her, and none of the depressing effects of ether or chloroform. It is also most valuable in these cases in changing the position of the child, and in bringing forward the neck of the uterus into its proper position. In neither of these instances was there disturbance of the bowels, pain in the back or head. To the country practitioner, who has to extract teeth, or perform all the minor operations in surgery, it is a great boon, as it acts like nitrous oxide gas; it is well where a number of teeth are to be extracted, that a prop of hard wood attached to a string should be used, so as to prevent such an accident as once occurred in Philadelphia, under the use of nitrous oxide gas, as of the swallowing of a prop of cork. In many cases where you do not want a very profound narcotism with hydrobromic ether, the muscles of the patient become rigidly contracted. This condition occurred on a recent occasion, when we administered ʒj of this anæsthetic, and the operator's finger was caught and pinched, as also his forceps, and yet before operating we could touch the cornea with impunity. Although the impression passed away very rapidly, we extracted twelve teeth with entire success, the patient promptly recovering consciousness, and not feeling the pain. In the following case the patient went under it very kindly. This patient was a man of very nervous temperament. With three drachms of the hydrobromic ether anæsthesia was produced without any struggling, and in four minutes from the time he had commenced to inhale it, the Dentist had extracted ten teeth, and he had fully recovered consciousness, although he had just eaten a

heavy breakfast of solid food. There was no nausea in either of those cases.

In a recent case of cataract extraction, the patient went beautifully under the influence of the anæsthetic, extraction was accomplished, and the patient recovered so as to be able to count fingers; but, owing to some strong coffee which she drank, from dyspeptic symptoms, or the swallowing of water soon after the operation, she became very sick at her stomach, and vomited for nearly twenty-four hours, and yet the case did well. In a case of operation for torticollis in a woman, she swallowed so much air with the ether that, as a consequence, she complained of pain, of a hysterical character, in lower part of the abdomen—the same which is often the result of nitrous oxide gas inhaled, and too much air admitted.

A few days ago we received a letter from Dr. J. Patterson Cassels, of Glasgow, a distinguished aurist, and a surgeon to the celebrated Glasgow Infirmary; he writes that he has used a specimen of the hydrobromic ether, which I gave him at Cork, as vapour, in diseases of the middle ear, and has also employed it as an anæsthetic with success.

THE ADMINISTRATION OF ANÆSTHETICS.

By ROBERT SAUNDBY, M.D. Edin., M.R.C.P.,

Assistant Physician, late Pathologist and Chloroformist, to the
General Hospital, Birmingham.

It may be assumed that the anæsthetic agents usually employed in practice are ether and chloroform. Moreover, it may be affirmed that they are so safe and satisfactory that, while we all shall welcome any better, it is not wise to abandon these well-tried means for every new compound possessing anæsthetic properties, with nothing else to recommend it but its novelty.

But these agents are neither satisfactory nor safe unless properly administered with due discrimination of the cases suitable to each. The reports of deaths from both chloroform and ether which appear nearly every week point to the urgent need for those who have larger practical experience than ordinary to formulate their opinions. Even at the risk of being considered dogmatic I shall try to state accurately what are the methods I use, the precautions I have found necessary, and the errors I have learnt to avoid in the

administration of anæsthetics ; and I hope by clearly enunciating my own views to raise certain questions in a definite manner, which shall be capable of being affirmed or denied, but at any rate must be answered.

The agent to be preferred.—As a general rule I prefer ether, because I believe it to be safer and the public believes it to be safer ; it is a perfectly satisfactory anæsthetic, and its after-effects are less depressing than those of chloroform. The kind of ether I use is Macfarlane's methylated ether, as made for Dr. Keith, because it is cheaper, and in every way as good as the more expensive kinds. The apparatus I employ is a towel folded lengthwise, with three or four thicknesses of paper between the folds, made into a cone by twisting it on one hand, and fixing it with a few safety pins.

Preliminary arrangements.—No solid food should have been taken for at least three hours before the time fixed for the administration. I can recommend the plan proposed and practised by my friend Mr. Priestley Smith of administering a dose of chloral hydrate an hour before. Do not give brandy or any other stimulant just before administering ether ; it is unnecessary, will probably be vomited, and introduces another factor into the conditions which we should try to keep as simple as possible. Examine the chest, and make inquiries as to cough in all cases. Inflammation of the lungs or air-passages forbids the use of ether. The vapour of ether irritates healthy lungs, often to an excessive degree, and sometimes causes a slight bronchitis for a day or two, while occasionally it gives rise to fatal œdema of the lungs, even where no previous disease existed in these organs. It is therefore plain that all inflammatory conditions of the lungs are likely to be made worse by ether. Chloroform is to be preferred in all such cases. Cardiac disease *per se* does not contra-indicate ether, as the drug aids a weak heart. In aortic incompetence with badly filled arteries the circulation becomes better during the administration of ether. In mitral disease the case is somewhat different. It must be remembered that ether frequently causes spasmodic dyspnœa, which ordinarily need cause no alarm, and calls for nothing but temporary suspension of the administration, but during which there is great venous turgescence, and the right side of the heart is necessarily overloaded with blood. So that wherever I have reason to believe that the right side of the heart is weak and dilated I should prefer chloroform to ether. The same would hold good of dilatation of the right ventricle apart from mitral disease.

Fractures, herniæ, and other conditions in which complete

muscular relaxation is required are cases in which, *cæteris paribus*, I should use chloroform.

Operations about the face can sometimes be performed only with difficulty, or not at all, while ether is being administered; in these chloroform must be employed.

Young children take chloroform with such ease and safety that it is to be preferred for them.

Method of administration.—The orifice of the cone should be large enough to cover the lower two thirds of the patient's face, and take in the chin and lower jaw. It is always preferable to have the patient lying down with his shoulders a little raised, and his head not much higher than his shoulders; the pillow should be firm and flat; unfasten anything that is round the patient's neck; ask him to turn his head with the *right* cheek on the pillow, to shut his eyes and mouth, to breathe through his nose; tell him to try to go to sleep, and assure him that the ether will be given him cautiously. Pour about an ounce of ether into the cone, and approach it slowly towards the patient's face; with a little encouragement he will soon submit to having it brought quite close, for partial anæsthesia is rapidly induced. When once it is close to his face it should not be removed for some minutes, in spite of any struggles or protests. Fortunately, patients rarely recollect what occurs at that time if the cone has been approached gradually. The ether should be given liberally, as atmospheric air is being excluded, and the patient is respiring nothing but ether vapour. Stertorous breathing is a sign that the patient is "over," and that the operation may begin. If there is much lividity stop giving ether for a short time, and the natural colour will soon return. The ether must be given almost continuously throughout the operation. Stertorous breathing is not a warning of danger. On the contrary, I like to hear this noisy breathing, as I feel sure my patient is going on all right.

Cautions.—It is absolutely necessary that one person should do nothing else but administer the anæsthetic. He should never leave his post to assist or perform other duties. His business is to give the anæsthetic and to watch the breathing. He should let his own breath, as it were, hang on the breathing of his patient, so that he cannot breathe himself till his patient breathes. In this way he will be able to detect the slightest irregularity. With ether there is often some spasm, and respiration stops for a time, but a tap on the chest or rotating the head starts it again, as a rule. If inspiration seems difficult, remove any mucus from the fauces with the finger, draw out the tongue with a pair of

artery forceps, and pull it well forward, so as to open the glottis. If this does not succeed artificial respiration must be resorted to while the tongue is still drawn forward, but it is satisfactory to say that I have never yet needed to have recourse to it.

The colour of the skin of the ears is a good index to the state of the circulation. If these are livid the administration should be stopped temporarily.

After the operation.—It is prudent not to leave the patient, or at least except in the care of a properly qualified medical attendant, until he has shown signs of returning consciousness. This may be hastened by sponging his face with cold water, or slapping it gently with a wet towel, not so roughly as to cause marks. Sometimes holding the nose provokes a long inspiration through the mouth, followed by the sudden return of consciousness. This manœuvre is of no use when ruder measures fail, but it may precede them, and is often successful.

Where chloroform, for any of the reasons given above, is to be preferred, I administer it on a towel folded square. The preliminary arrangements and precautions are much the same as in the case of ether; but the patient requires, if possible, more careful watching. The reflex sensibility of the eye must be tested frequently; when it is abolished the operation may commence, and the chloroform should be administered with caution. Stertorous breathing is a warning to suspend the administration. Should respiration stop the tongue must be drawn out, and artificial respiration commenced at once. The respiration must be watched continuously. The pulse may be disregarded, as it gives no timely warning of approaching danger. *Although chloroform does not require to be administered continuously, it is not less necessary to continue to watch the respiration, even though no chloroform is being given.* Accidents often happen from disregard of this precaution. The chloroform may be safely poured freely on the towel, but this should be cautiously approached to the face, until finally the fingers of both hands press its lower edge against the margin of the jaw, while the surface of the towel forms an angle of forty-five degrees with the face. The experience of the Edinburgh school affords the widest basis for affirming the practical value and safety of this method of administering chloroform.

I have had two deaths from anæsthetics—one from chloroform and one from ether. The former was a case of gummatous disease of the larynx, for which tracheotomy was performed when the patient was nearly moribund from asphyxia. It was in my early days, and at the present

time I should decline to administer any anæsthetic in such a case. The other was from acute œdema of the lungs supervening some hours after the administration of the ether, and which I fully reported at the time. Both were hospital cases. In the numerous administrations I have had in private I have never met with a case which has given me any cause for alarm, though many have given me much anxiety. Indeed, I may say that I never administer anæsthetics without anxiety; for it appears to me no slight thing to hold a fellow-creature suspended between life and death for an hour or more, during which each respiration is watched for anxiously, and all our attention is strained to notice the first indication of impending danger.

In conclusion, I will recapitulate the points which I desire especially to insist upon:—1. Ether is to be generally preferred as an anæsthetic. 2. Inflammatory affections of the lungs and air-passages absolutely contra-indicate its employment. 3. It should be the sole business of one person to administer the anæsthetic during an operation. 4. The breathing must be watched so long as the patient is under the influence of the anæsthetic, whether it is still being administered or not.—*Lancet*.

THE ACTION OF ANÆSTHETICS.

THE Report of the Committee appointed to investigate the action of anæsthetics is to-day laid before our readers. The results of this inquiry are so important and so far-reaching as to demand the most serious consideration from every one whose lot it is to administer anæsthetics. The Committee, which included Professor McKendrick, Dr. Coats, Dr. Ramsay, and Mr. Newman, has already submitted three preliminary reports, which have appeared in former numbers of this journal. In conducting these investigations, two lines were followed: first, to discover wherein the special dangers of chloroform consist; and second, to attempt to find some safer anæsthetic. Observations made on rabbits showed that chloroform had a most disastrous action on the heart, as well as upon the respiratory centre; that, while ether might be administered for an indefinite period without affecting the heart, no sooner was the inhalation of chloroform commenced, than the right ventricle began to distend, and, in course of time, the cardiac contractions ceased. In every respect but one ether was superior to chloroform. It had, however,

one disadvantage—viz. the length of time which was required to obtain its action; and, on this account, the Committee proceeded to search for some other anæsthetic. Of a considerable number of substances which were made trial of in the course of this inquiry, ethidene-dichloride appeared to yield the most promising results; and, consequently, the actions of this compound were submitted to more special investigation. So long ago as the year 1858, attention was directed to ethidene-dichloride by Dr. Snow, who had employed it in several cases; and since then it has been made use of by Liebreich, Langenbeck, and various other observers in Europe and America. The Committee were fortunate enough to be able to make trial of anæsthetics in the wards of the Western Infirmary, Glasgow; and they were thus enabled to compare the action of ethidene and chloroform on the human subject. They give details of fifty unselected cases in which each drug was administered to produce anæsthesia during some surgical operation. From the tabular statements so obtained we may extract some important facts. The average dose of ethidene was 1·8 cubic centimètres for each minute during which the patient was under the influence of the anæsthetic; while, in the case of chloroform, the dose was somewhat smaller, the corresponding figure being 1·7 cubic centimètres. The time required to anæsthetise with chloroform was 1·1 minute greater than that necessary in the case of ethidene; and sickness appears to have been more prominent during the administration of chloroform than during that of the other anæsthetic. The most important difference in the action of the two anæsthetics, as observed at the bedside, consists in their influence on the pulse-respiration ratio. Charts are appended to the report which represent this in graphic form. In only one case did the pulse fall to 64 per minute during the administration of ethidene; and, in a large number of instances, the pulse and respirations were peculiarly regular. This was not the case as regards chloroform, the pulse frequently falling to 64, 60, 56, and, in one instance, to 48 in the minute; while the rate of respiration often rose much above normal; and, on one occasion, reached to a rapidity of 72 per minute. Such are the most striking clinical facts brought out in this report. The remaining pages contain the results of experimental observations on animals. As regards the action of chloroform and ether on the blood-pressure, the results are, in great measure, a confirmation and amplification, by means of more delicate instruments, of those obtained by the Committee of the Royal Medical and Chirurgical Society, the report of which was published in 1874. With chloroform there was at first

a slight transient rise in the blood-pressure, followed by a gradual but irregular fall. When ether was administered the primary rise was better marked and more prolonged, and the depression which followed it very slight. The report before us adds to this the effect of ethidene on the blood-pressure, and shows that this substance stands in an intermediate position between the other two anæsthetics, causing more lowering of pressure than ether, but less than that produced by chloroform. The same relation between these three anæsthetics is observed in regard to respiration: complete arrest of the pulmonary circulation being obtained most rapidly by chloroform, and with the smallest dose; least rapidly by ether, and with the largest dose; ethidene standing intermediate, whether as regards the time required, or the dose needed to produce the arrest of pulmonary circulation.

On a consideration of the physiology of the effects of anæsthetics on the circulation in the lungs we shall not enter. This subject is fully dealt with in the latter part of the Committee's Report; but we think that we have already given sufficient material for very serious reflection. In the face of the constantly recurring notices in medical journals, and even in the public prints, of deaths during the administration of chloroform, it cannot fail to be patent to every one that there is danger in the administration of that drug. It will be observed that it does not affect our argument whether such deaths were unavoidable, or were the result of faulty administration, or of administration of an insufficient quantity, as we believe to be not unfrequently the case. The fact remains that deaths do occur; and, in such circumstances, is it not the duty of the medical profession to endeavour to find a more safe anæsthetic? and, further, if, as this valuable report goes to show, ethidene-dichloride be a safer drug, is it not then incumbent on our profession to make use of it? Ether, while safe, has the alleged disadvantage of needing to be given in large quantities, and for a considerable time. Ethidene has no such disadvantages, and it may be given with the same feeling of security as attends the administration of ether. The Association may well be gratified with the result of its Committee's labours, and may feel that the encouragement and aid which it gives to scientific work, by means of its annual grants, are of substantial service to the cause of humanity.—*Brit. Med. Journ.*

DEATH UNDER ANÆSTHESIA BY ETHER.

ANY case of the above nature is of great importance, for many have hitherto looked upon, and perhaps will continue to regard, ether as a perfectly safe anæsthetic. The case in question is reported in the 'Cincinnati Lancet and Clinic,' by Dr. N. P. Dandridge. "The subject was a woman, aged forty-three, suffering from an abscess in the right thigh, which was discharging through an opening in the popliteal space. Her condition was bad; broken down by continued suffering, emaciated, unable to take food, and frequently vomiting." The abscess followed delivery, and was associated with necrosis of part of the femur. The ether was given in order that the sinuses leading out of the abscess-cavity in different directions might be opened up, or that the limb might be amputated if its condition should be found such as to forbid the hope of a useful leg. Ether was given from a sponge placed in the cone formed by the folding of a towel. An incision was made down to the femur, but no great amount of blood was lost. The surgeons present were then proceeding to examine the part, when the gentleman who was in charge of the ether called their attention to the patient—respiration having stopped, and the pulse being imperceptible. Artificial respiration was immediately practised, brandy was given by the rectum and hypodermically, and nitrate of amyl was applied to the nostrils. Under this treatment respiration was "partially restored," and the pulse returned. As recovery seemed advancing, preparations were made to amputate; but before this could be done, the pulse again began to flicker, and in spite of the free exhibition of ammonia and brandy per rectum and hypodermically, it gradually failed. Efforts at resuscitation by artificial respiration, galvanism, and, lastly, the injection of five drops of ammonia into the jugular vein, were kept up for more than two hours, but the patient finally succumbed. It is to be regretted that the report of the symptoms which preceded the cessation of pulse and respiration is not more complete in this important case. It has been generally believed that when the inhalation of ether proves fatal, it does so by means of apnoea, and gives full warning in the lividity and venous turgescence which precede death, and therefore foretell danger. In this case it seems, from the report, as if death took place by asthenia; whether lividity was present or not we are not told. Those points in the post-mortem examination which indicate the mode of death—the presence or absence of pulmonary congestion, of ecchymoses, and the

state of the heart's cavities—are not mentioned either ; we are only informed that “the lungs were not materially affected,” and that “the heart was normal.” The conclusion arrived at as to the cause of death is somewhat enigmatically expressed :—“Death occurred from nervous shock and accidents combined with the effects of the anæsthetic.” Although a death *under* ether, it is not clear to us that it was a death *from* ether. It is a great pity that the case is so imperfectly reported.—*Med. Times and Gaz.*

DEATHS FROM CHLOROFORM.

A DEATH occurred from chloroform, at Guy's Hospital, on Saturday last, the patient being one under the care of Mr. Lucas for erysipelas of the arm and hand. The patient, a male, æt. 43, had taken chloroform at the hands of the same house-surgeon who administered it on this occasion about a month before, when free incisions were made into the suppurating and inflamed parts ; and, at that time, the anæsthetic occasioned no anxiety, and gave rise to no prejudicial effects. Mr. Lucas saw the patient on Friday, and left instructions with his dresser to remove the remnant of a finger almost destroyed by gangrene. The house-surgeon administered the anæsthetic by means of an inhaler formed of flannel stretched over a frame. Some struggling took place, and immediately after the patient came under the influence of the drug he ceased to breathe, and his pulse stopped. The patient drew a few breaths after this, but in spite of artificial respiration and tracheotomy, which was promptly performed, he never rallied. Mr. Howse and Mr. Lucas, who were in adjoining wards, were quickly summoned, but their efforts, and those of the dressers, were unavailing. Neither pulsation nor cardiac sound could be detected from the first. Galvanism was tried, and artificial respiration kept up for an hour, without effect. Death appears to have been due to cardiac syncope. No post-mortem inspection of the body was made. An inquest was held on Monday before such examination had taken place, and the body was removed from the hospital soon after the finding of the verdict.

A death from chloroform is reported in the ‘Louisville Medical News,’ November 2nd, as having occurred in Ballard County, Kentucky. The anæsthetic was administered for the removal of a wen upon the neck. The patient was thirty-five years old, six feet seven inches high, and weighed 213 lbs. The diagnosis was “heart disease.”

A fatal accident also occurred ('Allg. Wiener Mediz. Zeitung,' No. 48) in the *klinik* of Prof. Billroth on the 25th ult. An exceedingly anæmic patient, æt. 14, who was subjected to deep narcosis for the sake of rectifying a spontaneous luxation in the left hip-joint, after he had endured osteomyelitis in the right lower extremities, died suddenly, and could not be resuscitated in spite of all efforts. The narcosis was produced in the manner usual there, by the inhalation of a mixture of chloroform, ether, and alcohol (100, 30, 30).—*Brit. Med. Jour.*

ANOTHER CHAPTER IN THE FRAUDULENT DIPLOMA TRAFFIC.

As most of our readers are probably aware, through the facts having been extensively published in the newspapers, Dr. John Buchanan, dean, &c., of bogus diploma notoriety, was supposed to have committed suicide by precipitating himself into the Delaware River during a night trip on a ferry-boat plying between this city and Camden. It turned out, however, that this was only a ruse on the part of the dean and his friends to divert attention from his flight. He was subsequently arrested in Michigan, brought to this city, and is now in prison awaiting trial.

Meanwhile, the charters of the "Eclectic Medical College of Pennsylvania" and the "American University of Philadelphia" have been annulled by the courts. The readers of our July number will remember these institutions as the chief offenders in the matter of issuing fraudulent diplomas, both being under the deanship of Dr. Buchanan. On the 30th of September replications were filed in the Court of Common Pleas, in Philadelphia, to answers submitted by these institutions to complaints of the Commonwealth. Their answers set out that they claimed to exercise their rights, privileges, franchises, &c., by virtue of an Act of Assembly dated February 25th, 1850, incorporating the Eclectic Medical College of Pennsylvania, and an Act of March 26th, 1867, incorporating the American University of Philadelphia. The replications to these answers averred that the above corporations had forfeited their charters because of, first, the conferring of degrees upon persons not possessing qualifications such as their charters prescribed; second, the sale of diplomas; third, the granting of degrees of doctor of medicine and antedating such diplomas in order

to make it appear that the recipient had the right to practise medicine; and fourth, the issuing of diplomas with forged signatures. After the replications were filed, counsel for both of the defendants confessed judgment of ouster in favour of the Commonwealth, a part of the record being a letter from Dr. Buchanan authorising such a course. We trust this will end this nefarious business so far as Philadelphia is concerned.

In this connection we may notice the exposure of a similar fraudulent institution in Boston, Mass., by a reporter of the 'Herald' of that city. One "Dr." Harry C. Stickney seems first to have brought the institution into existence at Manchester, N. H., about 1875, by procuring an Act of the Legislature incorporating the "New England University of Arts and Sciences." It was subsequently discovered that the college was being conducted in a fraudulent manner, and the bill incorporating it seems to have been repealed. But in the meantime Stickney had removed his base of operations to Boston. In 1877 information was received from the United States' consul at Brunswick, Germany, to the effect that parties in that country had got into trouble by practising under elaborately engraved diplomas, in Latin, from this institution, with signatures of undiscoverable officers attached. Stickney is supposed to have turned out about one hundred "doctors," the price of diplomas ranging from 100\$ to 145\$. The plates from which his Manchester and Boston diplomas were struck have been discovered, and he now seems in a fair way of meeting that justice which such practices merit, having acknowledged the substantial correctness of the charges brought against him.

We may as well note that our attention has been called by a correspondent to the fact that a corporation has been formed, to be known as "The Wisconsin Dental College," the same to be located at Delavan, Walworth Co., Wis. The names of the corporators are George Morrison, John Morrison, and D. B. Devendorf. Our correspondent further declares that one of the said corporators, viz. George Morrison, is travelling through Wisconsin disposing of diplomas of the afore-mentioned college on reasonable terms for cash. We shall be happy to correct this statement if it can be shown to be incorrect.—*Dental Cosmos*.

LEGISLATION FOR DENTISTS.

ALTHOUGH the Bill for regulating the practice of Dental Surgery has now been in existence for two years, still very little is popularly known as to its character, or the way in which it affects the general public. It is a measure of considerable public importance, and in many points resembles the earlier Acts passed for the better organisation of the medical profession. Prior to 1878, any one and every one who chose was at liberty to call himself, or even herself, a Dentist. After Sir John Lubbock's Bill became law it was necessary for these practitioners to apply to the General Medical Council, and give such particulars as were necessary for the publication of a Dental Register; this register is issued by the Council every year, and 1856 copies are sent all over the United Kingdom, to be deposited in the various local law courts. This is necessary for the purposes of justice, as no Dentist can now recover a fee for professional services unless his name be on the Register, whilst the annual publication of the list is rendered necessary in order that those who may be concerned in a case can ascertain whether any particular person has had his name removed from the Register by order of the General Medical Council. Such is a contingency not at all unlikely to arise for the next year or two, as it is no secret that a number of names that should never have appeared have found a place on the list. All these irregularities are of course inevitable in the first working of a new Act, but they will soon be remedied, and the public placed in possession of a register that will be subject to but slight alterations from year to year. This compulsory registration, though of extreme value as a means of recording the names and addresses of all legal practitioners, is by no means the most important part of the Act. The clause rendering a proper education essential for all Dental students is likely to prove of far greater importance, as it will give an annual supply of well-educated Dental surgeons to fill the places rendered vacant by the death or retirement of the senior members of the profession. It is not necessary to enter into the details of the prescribed curriculum, but it is of a nature very similar to that which is essential for the ordinary medical student, only those changes being made which are essential to the special requirements of the Dental surgeon. The licences in Dental surgery, granted by the various colleges of surgeons in the United Kingdom, must henceforth bestow upon their possessors a

definite and valuable professional position, and the public will learn by a reference to the 'Dental Register' who is possessed of this diploma, and also who may be practising simply under the claim to be admitted to the roll of Dentists, as having commenced practice prior to the passing of the Act. So far Parliament has done its share of protective legislation, guarding the patient on the one hand from the unscrupulous charlatan, and the Dental surgeon on the other, from necessary association with ill-educated or totally uneducated pretenders to professional skill. It must, however, after all, rest for a while with the public to exercise that intelligent discrimination in the choice of a Dentist which can alone make the operation of the Act thoroughly useful and efficient.—*Brit. Med. Journ.*

Dental News and Critical Reports.

AMERICAN NOTES.

FROM A CORRESPONDENT.

THE DENTAL BROTHERHOOD.

THE feeling of *esprit de corps* is tolerably strong amongst American Dentists, but sometimes the most accomplished members of the profession speak tolerably bluntly of their contemporaries. A few days ago I heard one of the most prominent Dentists of New York remark that he would venture to find among the Dentists of this country some of the biggest scoundrels, thieves, and examples of utter incompetency that were to be found in all the land. He admitted that there were good men also—many of them—but there were at the same time those who would disgrace any profession or trade. There are a great many Dentists in New York who think the same. The fact is, while they entertain a fraternal feeling towards their fellow Dentists in this city, they regard with unconcealed contempt the great mass of provincial men, many of whom have in some way or another become Dentists without having passed the examinations of any college, and perhaps without even having complied with the regulations of the Examining Board of their State. New

York can properly boast of supporting the cream of the profession, but not in the sense that London claims that honour in England. London is the centre of the British Isles—the throbbing heart of a mighty nation—in a sense that New York is not. True, this city is the largest in the Union, but then Philadelphia comes but a very little way behind it, and Chicago boasts that in a few years it will be the largest city in the United States. There is not in New York that overpowering magnetism towards itself which London exerts on the men possessed with the greatest talent in England, and by which it draws to itself a great deal of the genius which originates in the provinces, and which cannot find proper scope for its exertions except in the metropolis. Thus, we in New York, while having some of the best Dentists in the land, have not got them all, although some of us lay the flattering unction to our souls that we have.

BAD HABITS AMONG AMERICAN DENTISTS.

It is a great mistake, into which some Americans fall, to suppose that the majority of our Dentists are very careful to act as gentlemen. They possess some habits which an Englishman would deem utterly at variance with gentleman-like conduct. One of the chief vices to which our Dentists are addicted is that of chewing tobacco. Does any reader feel inclined to laugh at my speaking so seriously of this habit? If such a reader were an American he might, but if an Englishman—no. A short time ago I chanced to be at a Dental Convention, at which a large number of Southern members of the profession were assembled. There were some from New Orleans, Nashville, Austin, Richmond, and Baltimore, a city boasting of being the first in the world to erect a Dental college. From the latter city there was a Dentist who, from some cause unknown to me, is one of the Dental luminaries of his district. His conduct, incident to his constant habit of tobacco chewing, was such that I forbear describing it, for fear that my readers might feel at least a tithe of the disgust I felt on witnessing it. Then again, at another Convention—held by an association which boasts of being *the* Association of the States, if not of the world—one of the principal officers was so absorbed in his weed that all those individuals who were not afflicted with like tastes felt sorry for him. There is no exaggeration in this. I represent the facts that my English friends may know what is the actual position of our Dentists in regard to this national habit of chewing tobacco. One of the first objects of a true gentleman is to carry out the principles of

altruism—or in other words, to seek to promote the happiness and comfort of others against a selfish regard only for his own convenience or tastes. I rejoice to say that some of our American Dentists act up to this principle, and their conduct is all the more noticeable because of the disgraceful personal habits of some of their compeers. One would think that one of the absolutely indispensable requirements of a Dentist should be perfect cleanliness in his personal habits. No man who has not this should inflict his objectionable presence on a patient. Before American Dentistry can boast reasonably of supremacy it must purge from itself men who, by virtue of their nastiness, are a disgrace to the profession.

NITROUS OXIDE.

The use of nitrous oxide is becoming very general amongst Dentists in the United States and Canada. Nine out of ten use it blindly, knowing nothing about its mode of acting on the human organism, except that it “sends their patients to sleep,” and allows the operator to ply his forceps with a little less regard for his patient’s jaws than he otherwise would have to observe. But there is another and perhaps more potent cause for the growing popularity of this anæsthetic. The Dentist is a man who, like most Americans, has a great regard for the power of the “almighty dollar.” He buys a cylinder of gas, costing \$6, containing, say 100 gallons, and by care he can, by charging each patient extra for its administration, clear \$10 or \$12 profit. By many members of the profession nitrous oxide, while admitted to be safer than chloroform or ether, is regarded as not only superfluous in the Dental office but as productive of positive harm. A friend of mine, whose name occupies a high position among the Dentists of this city, declares that every Dental office where nitrous oxide is administered is a “pest-house of iniquitous butchery.” Dental conventions give a great deal of their time to discussions on this subject, but they only touch on its surface. They are incapable of doing more. The ordinary Dentists outside our large centres of population have the most superficial knowledge of human physiology, and how should they be able out of the darkness of the inmost recesses of their minds to cast any light on this subject? But we are progressing. We boast a great deal without reason to-day, but the clouds of ignorance are breaking, and although we are indebted to England for the idea of administering nitrous oxide in Dental surgery, we are yet following an original course of study, and it is to be hoped shall one day throw light on its esoteric workings

which shall be valuable to the Old World as well as ourselves.

DENTISTS DISAGREEING.

In the far-away West, three thousand miles from New York across the Continent, some of the Dentists who claim to be representative men, are just now quarrelling over a proposed new Dental College. A venerable Dentist—Dr. Cogswell by name—has offered to give a building and site in San Francisco for a college if sufficient money is raised amongst those interested in the project to provide the necessary appurtenances for the carrying out of the work. But the worthy doctor names as a condition of the gift that it be called for ever “the Cogswell Dental College.” Some of the leading opponents of the scheme—for there are actually men who advocate a non-acceptance of Dr. Cogswell’s offer—object to this naming of the college, and rather than submit to it they are willing to sacrifice the proposed gift. The value of the property is about 10,000 dollars, and to my readers it may seem very impolitic for it to be refused on so slight a plea. The West Coast Dentists need a college badly. The Dental offices of that region are dominated far too generally by a class of adventurers who have but small claim to be regarded as gentlemen. Good Dentists are at a discount, and those who have really the interests of the profession at heart see in the proposed college an institution which shall send forth men imbued with creditable aspirations as well as qualified to act as Dentists. There is great danger, however, of such an institution being wanting for years to come judging from the conduct of the local Dentists. They are pursuing a dog-in-the-manger policy; they neither desire the school for their own education, nor for the education of any one else.

Miscellanæ.

SPEECH FOR THE DUMB.

ALTHOUGH this is not a subject specially connected with Dentistry, it is one in which educated men of all professions must feel an interest. It is not altogether creditable to us as a nation that, whilst in Germany all but a very small pro-

portion of the congenitally deaf are taught to speak, here, in England, only an infinitesimal proportion are so taught, and a very considerable proportion grow up without any education whatever. The explanation of this is found in the fact that in Germany the education of deaf children is undertaken by the State, and is therefore carried out in such a way as to render the child an independent and useful citizen, capable of communicating freely with his fellow-men, and of gaining his own living. Though still deaf he is no longer dumb, and in spite of his deafness he is able to understand the speech of those with whom he comes in contact.

In England the education of this afflicted class has been left to private enterprise and charity. Although much has been done by this means, it has never been able to carry out the work as it should be done. At the last census (1871) it was found that there were over 4000 deaf and dumb children who had never been to school, and for whom there was no accommodation in any of the existing institutions; during the last ten years it is believed that this disproportion has considerably increased. All the asylums being full, and in constant receipt of urgent applications for admission, the great object has been to do a certain amount of good to the largest possible number, and as deaf children can be taught the language of signs in about one fourth of the time that is required to teach them to speak and to understand speech, the French (or sign) system has been almost universally adopted in this country. But when children so taught leave the asylum they are very badly armed for the business of life; not one person in a thousand understands their language; they are driven to herd together, they intermarry, and thus the affliction is propagated by hereditary transmission.

Thus it has come to pass that, while in Germany it has for a hundred years past been the exception for a deaf child to grow up dumb, here in England it has been much more exceptional for a deaf child to be taught to speak.

About ten years ago a school was established on the German system by some clear-sighted members of the Jewish community for deaf and dumb children of their own race. A Mr. Van Asch had, a few years earlier, established a private school in London, and his success did much to call attention to the subject. Then a Society was formed for the Oral Instruction of the Deaf and Dumb, and an excellent school was opened in Fitzroy Square under a Mr. Van Praagh. By these efforts public opinion in England has been considerably roused, and attempts have been made to introduce the German system in various provincial towns. But unfortunately there were no teachers available; the gentlemen above

mentioned came from Rotterdam, and the master of the Jewish School is a German (Herr Schontheil). It was absolutely necessary that some English teachers should be trained on this system, and to meet this want a training school has been established at Ealing by the "Society for Training Teachers of the Deaf." A well known member of our profession, Mr. Howard Hayward, is an active member of the Committee of this useful institution, and we hope that this brief account of the movement may induce many more of our readers to interest themselves in it, to spread a knowledge of it amongst their patients, and to help it as far as they can with their own and their friends' subscriptions. Those who wish for a more detailed account of the German system and its results should read a small pamphlet by Mr. Ackers (Longmans & Co.), or the paper by Mr. Kinsey, the principal of the Ealing Training College, published by Allen & Co, Waterloo Place.

REPAIRING RUBBER PLATES; METALLIC, INSTEAD OF WAX BASE PLATE.

By S. ARTHUR GARBER, D.D.S., Tipton, Iowa.

WHEN the plate is broken entirely apart, fasten together with wax, invert, and run plaster upon the palatal surface, making a perfect model; when the plaster is well set carefully remove each piece from this model, and with a jeweller's saw or a file cut away one fourth of an inch along each side of the fracture, and make dovetail cuts at intervals, transversely to the break, with burring engine or lathe circular saw; cut a groove half through the plate from front to posterior border as close to the molar teeth as new rubber is to go; chisel, burr, and scrape out the old rubber to the same depth as the groove is cut; replace each piece firmly on the model, and instead of waxing up in the usual way, take heavy *tinfoil* or tea-chest sheet lead (which is cheaper), and cut of the latter from five to eight or more thicknesses—according to the case—in width and length sufficient to cover the surface designed to be occupied by new material. Lay on and burnish down, and run a little wax all around the edge of this metal base plate to fasten it to the broken plate. Thus prepared it is ready for the flask. When the upper section of the flask is taken off the sheet lead can be easily and quickly removed. As there is no wax in the grooves or counter-sinks it is clean and ready for immediate packing. Before replacing the upper section of the flask scrape off all

lumps or irregularities from the surface of the plaster, making it perfectly smooth. Plates that are only partly broken apart can be scraped, counter-sunk, and the same kind of base plate used as described. By this method much time, both in the preparation and final finishing of the case, can be saved. In the former kind of breaks an entirely new and solid piece of rubber takes the place of the fracture.—*Missouri Dental Journal*.

ANCIENT EGYPTIAN DENTISTRY.

SIR,—I observe, in your journal of November 27th, a short discussion at the Odontological Society of Great Britain on ancient Egyptian Dentistry: Whether teeth stopped with gold had been found in mummies, or not? an affirmative statement having been made by Sir Gardener Wilkinson, and negatived by several others, after careful inquiries and personal investigations. I do not write either to corroborate the one or the other, only humbly to observe, as it may interest some of the members of the Society, curious on the subject of old teeth-stopping, &c., to know that I have seen, in the Etruscan Museum of Corneto, the ancient Tarquinia of Etruria—(a few hours' railway distance from Rome)—teeth in a skull, bound together and kept in their places by gold thread cleverly twisted in and out amongst them; and I think I have also seen solid gold-stopping there, or in the Etruscan Museum of the Vatican, or at Signor Augusto Castellani's here. Etruria, of course, was not Egypt, and Etruscan remains were perhaps posterior to Egyptian mummy times; yet modern researches have brought to light some similarities in their tombs and tomb contents. Their architecture, too, in some instances resembled Egyptian; and I may mention also the scaribæus gems, so common in Etruscan collections, point as their origin to the deified beetles of the Nile. May they not have adopted the teeth-tying with gold thread and the stopping of decayed teeth with gold from the Egyptians?—Yours truly, JOHN GRIGOR, M.D., No. 3, Piazza di Spagna, Rome, December 6th, 1880.

SIR,—Adverting to a discussion on ancient Egyptian Dentistry that is reported in your issue of the 27th ult., and with especial reference to that part of it which throws doubt on the accuracy of Sir Gardener Wilkinson's statement, allow me to present you with a cutting from 'Notes and Queries,' of October 11th, 1879, which appears to uphold it.

"*Stopping Teeth with Gold* (5th S. xi. 448, 497.)—Sir J. Gardener Wilkinson, in his 'Popular Account of the Ancient

Egyptians,' Lond., Murray, 1874, vol. ii. p. 350, states: 'And it is a singular fact that their Dentists adoped a method, not very long practised in Europe, of stopping teeth with gold, proofs of which have been obtained from some mummies of Thebes.' *I remember some time ago also seeing in the Mayer Museum at Liverpool, the jawbone of an ancient Egyptian with a false tooth secured by a golden wire.—A.W.M.*"

I underline the part to which I refer, and I believe that additional confirmation of the fact—for such, I think, it is, may be found in Thomas Pettigrew's 'Egyptian Mummies,' or in Bunsen's 'Egypt's place in Universal History.'

Describing the battle in which Kootle-ood-Deen, the General of Mahomed Ghoory defeated (Circetes anno 1450 or so) and slew the Rajah with an arrow, which pierced his eye, Ferista says ('Rise of the Mahomedan Power in India,' translated by Briggs, vol. i, p. 892) that the "corpse of the Rajah was recognised by his artificial teeth, which were fixed in by golden wires."—Yours, &c., W. CURRAN, Warrington.

P.S.—The same Ferista relates, *apropos* of the Cæsarean section and artificial feeding in fever, &c. (Ibid. vol. i, p. 545), that "the wife of Kaly Khan, his own cousin, was smothered by the fall of her house, when pregnant. Her husband caused her to be instantly opened (about the period noted above), and saved the life of the infant, who was called Bulloo." As regards the artificial feeding, he adds, vol. ii, p. 8, that baby's life was saved in a dangerous illness "by conveying sustenance (to him) through moistened cotton, applied to his lips." Verily, there is nothing new under the sun!—*Brit. Med. Journ.*

THE CAPE COLONY DENTISTS' REGISTER.

MR. B. T. HUTCHINSON writes to us from Cape Town, South Africa, to say that the Colonial Government have lately established an official list of qualified Dentists. All Dental practitioners who possess diplomas granted by a recognised college, or other licensing body, have been requested to send in these documents for registration; the names of all practitioners, whose credentials are approved, will be inserted in an official list, which will be published annually with the already existing list of legally qualified medical practitioners. Unlicensed Dentists have not as yet been placed under any restrictions, but the publication of this Register is a step in the right direction, since it will enable the public at once to ascertain whether or not any given

practitioner possesses a legal qualification. In Canada, we believe, a similar system of registration already exists; New Zealand possesses a Dentists Act almost identical with our own, and it is to be hoped that before long the Australian colonies will follow the example.

BELLADONNA IN SALIVARY FISTULA.

IN two cases of salivary fistula from injury to the Stenonian duct—one after incision, the other due to a stab—the application of belladonna extract, with glycerine, over the parotid gland of the affected side, was followed by arrest of glandular secretion. The fistulæ then speedily healed without interference.—JAMES ALLAN, New Wandsworth.—*Brit. Med. Journ.*

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

THE Annual General Meeting for the election of Officers, the reception of the reports of the Treasurer, Librarian, and Curator, and other business, will take place at the Dental Hospital, Leicester Square, on the 10th inst., at 8 p.m.

Mr. George Wallis will show Mr. Lennox Browne's adaptation of the lime-light, some casual communications will be given, and the retiring President (Mr. A. J. Woodhouse) will deliver his valedictory address.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

THE second ordinary meeting of this Society was held in the rooms of the Dental Hospital, 30, Chambers Street, Edinburgh, on the 11th December. Walter Campbell, L.D.S., Dundee, President, in the chair.

The following gentlemen were nominated for membership:—John Stewart, Princes Street, Perth; W. P. Robertson, Aberdeen; Norman MacQueen, Hamilton; and Walter Whitehouse, L.D.S. Ed., 26, Denbigh Street, London.

An interesting and instructive discussion on the merits of nitrous oxide and nitrous oxide and ethidene-dichloride claimed the attention of the entire sederunt. "Notes on Alveolar Abscess," and several cases of interest were in consequence deferred till the next meeting. We hope to be able to give a report of the discussion in our next issue.]]

WESTERN COUNTIES DENTAL ASSOCIATION.

THE December Meeting of the Council of this Association was held in Exeter on Saturday, December 11th, at the Dental Hospital in Bedford Circus, G. T. Parkinson, Esq., of Bath, in the chair. Subsequently the Ex-Mayor of Exeter, Wm. Horton Ellis, Esq., who is the President of the Dental Hospital, entertained at dinner at his residence, Hartwell House, the Committee of Management and Medical Staff of that Institution, and the Officers of the Western Counties Dental Association.

SOCIETY OF LICENTIATES IN DENTAL SURGERY OF GLASGOW.

THE annual business meeting was held in November at the rooms of the Dental Hospital, Anderson's College. The meeting, which took the form of a conversazione, was well attended, and several objects of interest to the Dental surgeon, as well as contrivances for mechanical purposes, means of testing stoppings, &c., were exhibited. After the more informal proceedings the President, Mr. Brownlie, took the chair, and the Society proceeded to elect office-bearers for the ensuing year as follows:

President—Mr. J. R. Brownlie.

Vice-President—Mr. W. S. Woodburn.

Treasurer—Mr. John Melville.

Secretary—Mr. Jas. Robertson, B.A., Oxon.

Council—Messrs J. Crooks Morison, John Foulds, James Cummings, and W. H. Gray.

Mr. William Martin was then proposed for the membership of the Society.

The rest of the meeting was occupied with the revision of the rules, and the consideration of the question of forming the Society into a branch of the British Dental Association. This, however, was seen to be impracticable, as its present constitution only admitted licentiates, but, in order that there might be no obstacle whatever to any one joining both societies, it was decided to reduce the subscription from one guinea to half a guinea in this Society.

It was then intimated that the next meeting would be held at the residence of the President, who would give demonstrations of the various processes of continuous gum work. The meeting closed with a vote of thanks to the Chairman.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the ordinary meeting of the Council of the Royal College of Surgeons, held on the 9th ult., on the motion that the minutes of the previous meeting be confirmed, a proposal was made that such part of them as related to Sir James Paget's motion be not confirmed; this was, after some discussion and a division, lost, and the minutes were confirmed as they stood. Sir James's motion—which, it will be remembered, is to the effect that after September, 1881, the examination in general education, held with the authority of the Council by the College of Preceptors, shall cease to be held—was therefore carried, and a committee was appointed to consider the resolution and the regulations relating to the several preliminary examinations recognised by the College, whether for the membership or the fellowship, and to report to the Council thereon. Mr. H. T. Butlin and Mr. Frederick Treeves were appointed Erasmus Wilson Professors for next year, the former to deliver two lectures on the structure and nature of certain tumours, and the latter one lecture on the pathology of scrofula. A letter from Dr. Haldane, on the part of a committee of the General Medical Council, suggesting the institution of a compulsory preliminary scientific examination, was read and referred to the Committee on Preliminary Examinations. Mr. Holden's motion for the discontinuance of the President's annual report on the affairs of the College was carried in the following modified form:—"That an abstract of the proceedings of the Council and of any documents presented to the Council relating to matters not otherwise contained in the Calender be prepared by the Secretary, and, subject to the approval of the President, be published annually in the Calender of the College, and that the abstract be headed 'Secretary's Report.'"

At the meeting of the Council, which was held on November 11th, it was decided, in accordance with a recommendation of the Board of Examiners in Dental Surgery, to recognise attendance on the practice of the Dental Hospital of Exeter as qualifying for the Dental Diploma of the College.

 APPOINTMENT.

MR. W. S. BURROWS, L.D.S. Eng., has been appointed Dental Surgeon to the North-West London Hospital.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

EAST ANGLIAN.—We shall keep the subject in view, but should prefer not to do more than this at present.

MR. C. DE LESSERT.—The announcement is in very bad taste, but we cannot find much fault with strangers when some of our own graduates have so little regard for their own dignity.

ALIQUIS.—It is quite useless. You have not only wasted your money, but have given encouragement to a shameful traffic. We can give you neither advice nor sympathy.

Communications have been received from Messrs. J. Crooks Morison (Glasgow), F. Canton (London), Jas. Hardie (Alloa), C. de Lessert (Wolverhampton), W. Hodgskin Hope (Wellingboro'), H. B. Mason (Exeter), B. T. Hutchinson (Cape Town), &c.

BOOKS AND PAPERS RECEIVED.

‘Lancet.’
 ‘Medical Times and Gazette.’
 ‘British Medical Journal.’
 ‘Chemist and Druggist.’
 ‘Journal of the Chemical Society.’
 ‘London Medical Record,’ &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

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Dental Surgery and Medicine.

SYPHILIS ABOUT THE MOUTH.

A paper read before the Students' Society of the Dental Hospital of London, December 13th, 1880.

By F. NEWLAND PEDLEY, L.D.S.

MR. PRESIDENT AND GENTLEMEN,—Syphilis is a subject upon which we have had no paper for some years. Yet it is a disease that is constantly exhibiting itself in the mouths of our patients, and exposing us and others to the chance of contagion by inoculation.

I regret to say that a thorough knowledge of the contagiousness of this disease is not as general amongst members of our profession as it should be, and I shall think that a good result has been achieved this evening if I induce you to take extreme care that neither operator nor patient be needlessly exposed to the inoculation of this horrible infection.

No one knows how old syphilis is, but it seems to have been well known to the Moors at the Siege of Granada. The first description that we get of the disease in Europe comes from Barcelona in 1494. The physicians at that date called it *Morbus Gallicus*, and said that it came from France, where it was commonly known as the disease of St. Semente. A Messinese traveller, writing from Barcelona on June 18th, 1494, says:—"On arriving at this port, which is a flourishing city in Spain, I really shuddered at the sight of so many victims of contagious disease." He describes it from report, as "lasting for a year, beginning in the private parts, and then breaking out in other parts of the body." After this it gradually became a recognised and familiar disease, celebrated for its virulent and persistent character.

You are aware that under the head of syphilis are often included two diseases that are locally characterised, the one by soft sores, and the other by a hard sore. I shall make

no further reference to soft sores, they are merely local, and do not affect the constitution. In speaking of syphilis to-night I allude to that malady which follows the indurated sore or Hunterian chancre.

The accepted history of a hard chancre is that a vesicle may form within an interval of from five days to a month after exposure to contagion. The vesicle cracks, breaks down, and becomes excavated, and the characteristic induration of the base occurs, feeling to the touch as if the margin of the sore were formed of a layer of parchment.

If left alone the sore will generally heal in six weeks, and about that period secondary symptoms, consisting of a coppery rash, will appear on the body, accompanied with sore throat, and possibly psoriasis about the soles and palms. The disease, if neglected, may go on to the tertiary stage, characterised by gummata and ulceration.

This hurried outline must suffice for an introduction to my true subject, which relates to the disease as seen by Dentists. The commonest manifestation of it which I have noticed has been in the form of cracks, fissures, and ulcers about the tongue. There are two forms of these ulcers, *i.e.* superficial and deep. Paget says that the former are related to the syphilitic psoriasis which appears on the palms and soles; the latter to the deep ulcers that follow gummata. Of the superficial ulcers the most common are such as form at the sides of the tongue. Some of them may not deserve the name of ulcers, for they have thin coverings of epithelium, and do not bleed when roughly touched. They may be like little starred or oblique fissures at the edge and top of the tongue, or may appear as pale, bald, raw patches on the mucous membrane, or, again, they may be single, flat-based, defined, and thin-bordered ulcers through nearly the whole thickness of the mucous membrane. With any of these forms of disease there may be round the ulcers little groups of florid papillæ. All the superficial syphilitic ulcers of the tongue are very sensitive and sore. In course of time nearly the whole surface of the tongue may become opaque, whitish, and smooth, and the whole organ may become large and thick.

In distinguishing syphilitic induration of the tongue from that due to malignant disease, Paget lays great stress upon the comparative hardness of the tumour. He says that the softness of the tumour, the presence of white stains, and the coexistence of other venereal symptoms, are to be our guide in diagnosing syphilis of the tongue.

A useful diagnostic sign by which one may distinguish syphilitic from cancerous enlargement of the tongue is that

syphilitic indurations of the tongue never involve other than the lingual substance, but malignant growths usually make their way into the surrounding tissues.

The peculiar white markings which are so commonly found on the mucous membrane of the mouth of those suffering from constitutional syphilis, though not confined to that disease, are yet very valuable indications of the probable nature of the affection they accompany.

They are seldom seen in cancer, although the tongue is frequently covered with a very thin fur, which, when distributed in patches, might easily be mistaken for these white markings. The attempt to scrape it off will, however, at once distinguish between them, for the syphilitic stains are in the epithelium and not upon it, and cannot be removed. Occasionally punctiform, they more commonly occur as broad flat patches much resembling thin films of bluish milk, at other times they are slightly raised and of a dead white colour. When occurring on the back of the pharynx they have been compared by the Irish surgeons to the slimy tracks left by snails.

The deep syphilitic ulcer is usually the result of a broken-down gumma. Gummata appear in tertiary syphilis. They are, at first, hard, rounded, inflammatory growths; they may form in any tissue of the body, and are exceedingly prone to break down and to leave an ulcerated surface. We often see them in the median raphé of the tongue. The typical syphilitic ulcer is described by Holmes as forming a large excavation with foul, raised, crescentic edges and sloughy surface.

By a process strictly analogous to the formation of an ulcer by the breaking down of a gumma, we observe the necrotic perforation of certain bones about the mouth. The bones most liable to this form of necrosis are such as are compact in structure and have thin, soft coverings, such as the palate bones, the palate process of the superior maxilla, the vomer, &c.

It is sometimes very difficult to distinguish the deep syphilitic ulcers from the irritable, the dyspeptic, or the cancerous form. All these ulcers resemble one another greatly in shape, and it must be remembered that any sore place about the mouth may take on the specific form provided the patient be syphilitic, hence an irritable ulcer may become specific. There are, however, certain useful points to aid our diagnosis.

Irritable ulcers get well when the offending tooth or irritating cause is removed. They are usually seen at the point where the teeth touch the side of the tongue or the cheeks.

Dyspeptic ulcers are found in the middle line of the tongue, and the aspect of that organ shows that the stomach is out of order. When the digestion is improved the ulcer gets well.

Syphilitic ulcers will not get well without antisyphilitic remedies. There may be the history of the case or other evidences of syphilis to guide us.

Cancerous ulcers do not get well at all. The submaxillary lymphatic glands become enlarged after a time, while in tertiary syphilis it is the posterior cervical glands that become swollen.

A course of iodide of potassium settles the question between the two latter forms of ulcer, for the syphilitic ulcer heals under its influence, whilst the cancerous does not.

Another form in which syphilis about the mouth is brought before our notice is in the shape of the mucous tubercle. These are described as occurring in flat, raised, oval patches generally situated at or near the junction of the mucous membrane with the skin, covered with a whitish velvety epithelial tissue. In the same situation condylomata are found, consisting of small masses of the hypertrophied structures of the skin, discharging a foul secretion.

I think that we should do well to regard with extreme suspicion all cracks, fissures, and sores of any kind whatever about the lips; for, certain it is that the secretion from these syphilitic sores is inoculable and may be conveyed from the lips of one patient to those of another, unless extreme caution be observed in thoroughly cleansing all our instruments.

Besides syphilis thus acquired by inoculation, there is the hereditary form of the disease, which runs a course very similar to that in adults. Syphilitic children go through the primary stages in utero, and can impart the affection to the healthy mother; their secondary symptoms commence usually about a month after birth, and tertiary symptoms, in the form of diseases of the eye and ear, may follow after a lapse of time.

Dentists ought to know about infantile syphilis, for it modifies the shape of the teeth; so does the mercury that is taken as a remedy for the complaint. The temporary upper central and lateral incisors are generally lost very early, and the children may be brought to us with exfoliation of particles of the alveolar process corresponding to those teeth. You will easily recognise the children by their miserable stunted look, the puny hand, protuberant forehead, flattened nose, and puckered mouth. You will have no need to search for the coppery eruption on the genitals, palms of hands, and soles of feet, in order to interpret the ancient, careworn,

superannuated look of the child. The treatment is mercury. Perhaps the very fact that mercury is the only cure for infantile syphilis is the cause of the strange blunder that has existed until the last few years of confounding Hutchinson's syphilitic teeth with "mercurial teeth."

Personally, I would include all the "mercurial," "stomatitic," and "strumous" teeth under the one generic term "stomatitic;" for it is proved beyond cavil that whatever leads to even congestion of the mucous membrane of the mouth or alveolus while the tooth is in process of formation, will produce rocky, honeycombed, pitted teeth. But honeycombed teeth are not necessarily mercurial, for Mr. Samuel Cartwright says he has seen as many in Germany, where mercury is comparatively seldom given, as in this country. It is no argument in favour of the identity of "mercurial" and syphilitic teeth that both varieties are occasionally found in the same mouth, for the "mercurial pitting" is caused by congestion of the mucous membrane, resulting from the mercury given as a remedy for infantile syphilis.

I fully accept Mr. Jonathan Hutchinson's view on the subject, and this paper would be strangely incomplete if I omitted a brief description of Hutchinson's incisors and Moon's molar. The first molar that bears Mr. Moon's name is dome-shaped and stunted, and is in itself pathognomonic of hereditary syphilis; but the teeth to which the greatest amount of attention has been directed are the permanent upper incisors. Mr. Hutchinson says:—"The upper central incisors are short and narrow, their angles rounded off, and their edges exhibit a broad shallow notch." The single broad notch, of greater or less degree of depth, is hardly ever wanting. The teeth are always of bad colour. On looking carefully at the surface of the notch there is almost always evidence of wearing, that is, the enamel is not perfect at the scooped-out border of the tooth. I believe that these teeth rarely present the notch at the time of their being cut, there being usually a small projecting lobe. Above the base of this lobe, which is very thin, extends a crescentic line, marking out the size that the notch will have when, as is quickly the case, the thin central plate has been broken or worn away.

The upper lateral incisors deviate but little from the natural type. Rarely are they notched, but they are often small and ill formed.

In syphilitic mouths the canines, as a rule, show blunted extremities, in the centres of which are seen single little tubercles. It is almost always present in syphilis, but is not a reliable diagnostic sign.

The lower incisors hardly ever show notches in their borders. Sometimes their central lobes are peculiarly elevated, and by an excessive development of their tubercles and serrations they come to resemble the teeth of fishes. Eventually the teeth become shortened and peg-shaped.

Syphilitic teeth are further distinguished from stomatitic teeth by the fact that the former look soft, worn, and rounded, the latter are harder, rugged, with well-defined margins.

Hutchinson's incisors are not due to mercury, for they have appeared in the mouths of children who have not taken mercury, and those who have taken mercury never display the characteristic syphilitic incisor.

I shall conclude by mentioning a rare form of dental caries that seems to be syphilitic. In vol. xlv of the 'Medico-Chirurgical Transactions,' a case is quoted by Dr. Marston of a syphilitic man whose teeth decayed in a most characteristic manner.

"A dark spot would appear on the front aspect of the enamel close to the gum. The lateral incisors of the upper jaw were the first affected, and disease of the remaining teeth speedily followed. The discoloured spot became the seat of caries, and a minute circular hole resulted, situated in the middle line of the tooth bordering upon the gum. The disease in each tooth gradually advanced from before backwards, extending laterally at the same time, and making its way in a very definite manner till the line of caries passed through the tooth, and severed it at its junction with the fang. The lower teeth were affected in a similar way."

Dr. Marston says he has seen this very disease of the teeth follow the same course in two other cases.

Mechanical Dentistry.

ON CONTINUOUS GUM WORK.

A paper read at the Meeting of the Midland Counties Branch of the British Dental Association, held at Manchester on October 6th, 1880.

By J. S. CRAPPER, Esq., L.D.S.

You will find recorded, by referring to the 'Transactions of the Odontological Society of Great Britain,' November 5th,

1877, vol. x, a paper of mine on this particular subject. I now purpose going more into detail, giving you further information upon certain points, the result of practical experience, since that date. I trust also that it may be the means of exciting an interest in this method of work which has found more favour in America, where it was invented by Dr. John Allen, than it has done here in this country.

About twenty-eight years ago this gentleman introduced it to the profession, and as a proof of the estimation in which it is held, it is required that candidates for graduation at most of the Dental colleges possess a thorough knowledge of mounting and constructing a "Continuous Gum" set of teeth. When this specialty is well known in England similar conditions will doubtless be imposed here. One of the principal arguments in its favour is that it is composed of materials of high conducting properties, which, after being in the mouth a few minutes, absorb the heat to the temperature of the blood and transmits it to the palate. It thus prevents inflammation of the tissues, a result often found where vulcanite or celluloid is used. It is well known that the latter materials confine the palate and mouth in an overheated state. This is a manifest disadvantage when compared with either "Continuous Gum Work," "Gold," or "Platina" bases; for this reason, among others, I never advise the adoption of vulcanite or celluloid in my practice, excepting in temporary cases, and then when the gums have receded to the desired extent, judgment is required what metal and style of work to adopt.

The sectional gum teeth worked on gold or platina can be used with advantage in many instances, but in certain cases where it is desirable to arrange the teeth to conform to the unequal absorption of the processes, nothing can surpass the continuous gum teeth, made with crowns and fangs precisely similar to natural teeth. They are arranged separately and can be accurately adapted either to the upper or lower jaw, and to any irregularity which in many cases would render the sectional gum teeth of no use, as they would give an unnatural fulness to the mouth.

The appearance and colour of the gum enamel must be admitted to be most natural and life-like, and the comfort imparted to the lips and cheeks by the coolness of this ceramic porcelain material is beyond conception. One of the principal objections urged against these dentures is their weight, but this is more imaginary than real, especially when we consider that the plate is kept in position by atmospheric pressure—fifteen pounds to the square inch. If the fit is

accurate, the pressure is so evenly distributed that the patient does not experience the slightest discomfort. You will often find in working gold as a base, that a heavy piece will sit more steadily in the mouth and be more satisfactory to the patient than metal of a thinner and lesser weight. Therefore absence of weight is not always a "*sine quâ non*."

Several gentlemen in various parts of the United Kingdom have been eminently successful with this work and it is very gratifying to know that many Dental brethren have expressed to me, by letter, their entire satisfaction with the results obtained, bearing in mind that the hints given by me were in correspondence, and not in practical illustration. A friend of mine, Mr. T. A. Wilson, of Bangor, who adopted it through my advice, is highly gratified; and it is only fair to acknowledge the advantages accruing from some very practical suggestions of his relating to an improvement in the form and construction of furnace and muffles. Also Mr. Thomas Mansell, a former pupil of mine (who, you will remember, received from the hands of Luther Holden, Esq., President of the Royal College of Surgeons, the Gold Rymer Medal, two other medals, and three Certificates of Honour), has recently read a paper on the advantages of the work in question before the students of the National Dental Hospital, London. I mention these facts to show that a growing interest is felt in this beautiful work—an interest that must deepen and strengthen as our practitioners become more acquainted with the advantages of this branch of the Dental art.

Any one commencing this work must necessarily meet with failures; but by careful manipulation, combined with absolute cleanliness, and strict attention to what may appear the small and insignificant details of the work, these failures can be reduced to a minimum.

The first step is to take an impression of the mouth in plaster of Paris; this will set better if mixed with tepid water in which a little chloride of sodium is dissolved. If mixed properly there will be no bubbles. To secure more uniform success a tray should be selected as near as possible to the depth of the palate and alveolar ridge. If you have not one of the desired shape, construct, in the following manner:—Take an impression in wax or composition, make a plaster model from same, and adapt a few layers of sheet wax or modelling composition to the depth you wish to have intervening between your special tray and palate. Take a zinc casting of this and strike up a plate of sheet zinc, file up and solder handle to same. Fix a small rim of modelling wax to the posterior ridge of the tray; try in the mouth, to

satisfy yourself that the wax adapts itself to the configuration of the posterior part of the palate. This is a safeguard to prevent the plaster passing beyond its destination. I need hardly say that this special kind of tray is equally useful for wax or composition, and for plaster impressions I find it indispensable.

I may mention here that I find Mr. Vanderpant's saliva bag very useful to protect the patient's dress from soils that may occur through the flow of a superabundance of saliva. It is necessary also to ask the patient to breathe through the nose, which prevents the sense of suffocation, and also to lean forward. This causes the excess of plaster (if any) to flow out at the sides and front. The wax rim before mentioned stops the plaster from flowing into the passages of the throat. When the remaining plaster in the cup begins to set, it is time to remove the impression from the mouth. Before removing, ask the patient to relax the muscles of the face, or you may find the impression so broken about the alveolar ridge as to render it useless. When dry use shellac varnish and subsequently a little vaseline. Take a model from the impression in the usual manner; strike up a plate, which for continuous gum work must be made of pure soft platina. Care is required not to allow the plate to extend too far over the alveolar ridge or to impinge upon the buccinator muscles and the frenum. It would produce irritation of the mucous membrane in the upper and irritation and dislodgment of the plate in the lower. Being satisfied that the plate is of the depth and size required, pure soft platina wire of conical shape must be soldered with fine gold around the edge of the plate. This, when neatly filed and burnished, leaves a perfectly round and smooth surface. The plate should then be roughed by a sharp sculptor after the style of chased or frosted work (similar to a case I have here). This causes the body to adhere to its surface when fired. Place a rim of wax around the piece and try in the mouth, so as to obtain the proper distance of bite.

Select suitable teeth; grind and arrange correctly. Place them (as a rule) directly under the ridge on the upper and a little to the inside on the lower plate. Take care that the teeth cusp and antagonise correctly. In grinding use as much care as with gum or plain plate teeth. If a mistake be made in grinding off too much, there is a liability to accident and breakage when the piece is finished. The long bite teeth, with the lingual surfaces approximating the natural length will be found the best, in most cases. It is essential that the teeth be moulded from natural ones of a colour to

harmonise with the eyes, length and fulness of lip, gum, &c. A slight irregularity of the teeth is desirable, sometimes by the laterals being thrown slightly over the distal surface of the centrals. You may often meet with cases of prominent alveolar and short upper lip, the gum showing very high. In such cases the teeth can be arranged to meet every peculiarity of the mouth. The gum enamel can be worked to a thinness unattainable by any other method, and a more natural appearance obtained. The teeth may now be tried in the mouth and correctly articulated, so as to show a counterpart of what you wish to have when completed. Having satisfied yourself that every point is correct, insert the piece in a rim of plaster and asbestos, and when thoroughly dry, the retaining wax should be removed by a stream of boiling water. Strips of soft platina should then be passed under the pins of the teeth, closing pins securely for soldering. Fine gold is absolutely essential; it should be cut into small portions and placed *in situ*, using a little borax as a flux, so that when subjected to the heat of the furnace the gold readily flows and secures the pins and strips to the plate. Cool gradually, and carefully wash and dry. Then boil out with dilute sulphuric acid (fresh acid must be used in each case) and afterwards wash well with clean water.

It is now ready to be placed on a saddle, made of pounded fire-brick and fire-clay. Let me again tell you that cleanliness is indispensable. Avoid touching the piece, therefore, with the fingers as much as possible. Take a clean Dental napkin in the left hand, on which place the saddle and piece. Carefully apply the gum body with a spatula, using "aqua distillata" to reduce it to a nice consistency, and carve neatly over the platina plate. A separation should also be made between each tooth.

The furnace should be got up to nearly a white heat for fusing, and the piece on the saddle should be placed in front of the muffle to allow it to gradually heat up, and should then be passed into the muffle, and finally to the end of it. If this is done too quickly it will cause shrinkage and cracks. A few minutes will then be sufficient to fuse the body. Take the piece out, and place in an annealing muffle on the top of the furnace, afterwards remove to a cool one. When cooled, take the piece as before on a dental napkin, and carefully and thoroughly fill up the cracks with gum-body. It must then be fused again, adopting the same precautions as before.

The next process is the application of the gum-enamel. This is prepared in a paste similar to the gum-body, and must be evenly and carefully placed by means of a spatula, using

at the same time a camel-hair pencil, dipped from time to time in "aqua distillata" to leave a fine surface.

It is again placed on the saddle at the mouth of the muffle, and when the moisture has entirely evaporated, is slowly and carefully placed home to the end of the muffle. The enamel will fuse in from three to five minutes if the heat of the furnace is up. Cool down as before, and then polish and burnish to give a neater finish. It can now be plated with fine gold by means of the gilding solution.

The piece being now finished should be found to be a good fit and a beautiful work of art, and a generous-hearted, intelligent patient will not hesitate to reward you with a good fee. I am reminded of the words of the late Josiah Wedgwood (whose name is held in veneration, particularly in the Staffordshire potteries) who said as follows:

"All works of taste must bear a price in proportion to the skill, taste, time, expense, and risk attending their invention and manufacture. Those things called dear are, when justly estimated, the cheapest. They are attended with much less profit to the artist than those which everybody calls cheap. Beautiful forms and compositions are not made by chance, nor can they ever in any material be made at small expense. A competition for cheapness and not for excellence of workmanship is the frequent and certain cause of the rapid decay and entire destruction of arts and manufactures."

A good many practitioners have advocated the use of gas furnaces. I have made experiments with them, but have not met with the success that I have with the coke furnace. The small model submitted to you is the one I find most useful. It is smaller than the one I originally used. I find it produces the proper degree of heat with the least consumption of fuel.

In conclusion, I may add that it was my intention to describe the cheoplastic and celluloid work (specimens of which I have with me), but I am afraid I have already occupied your time too long. No doubt we shall have other opportunities of meeting together, and hints given from practical experience in whatever class of work, and discussion on the merits and demerits of the same cannot fail to make the meetings of our Association mutually instructive. "Freely ye have received, freely give," should be the motto of this and of kindred institutions.

The paper was received with every mark of approbation, and afterwards Mr. Crapper had numerous specimens to exhibit, and it was universally admitted that the work was of the highest standard of excellence. A miniature model of

the furnace mentioned was shown, also several novelties, among which was the model of the mouth of a Zulu, which had been taken by Mr. Crapper during a visit of the troupe to Hanley ; this was useful in demonstrating what well-developed mouths this race possess.

AN ANNOYING ACCIDENT.

“SCHWALBACH,” under the above heading, mentions the fact that some flat teeth after being backed and soldered, and as I have experienced, when the piece has been polished, a tooth drops off without any apparent cause. My experience has told me the cause of this evil is not far to seek. No elaborate paragraph on heat and contraction is needed, for the fusion of the solder has nothing to do with it. It is simply a flaw in the platinum wire, which can be seen through a magnifying glass, or by taking a pair of pliers and putting some little strain on the wire, when it will be found to give way.

I remember, when I was an assistant, once having painful experience of this same annoyance, when, not an isolated tooth and that occasionally, but often two at a time came away. I can distinctly recollect six incisors coming away. The teeth, which were new stock, were subjected to examination, and the result was that in the workroom there was no hesitation in saying that it was the wire that was at fault. Should any one have the misfortune to possess a number of such teeth they may be sent back to the dépôt.

How to repair a tooth which has given way flush with the mineral may be new and interesting to some. Clean the amputated pin, put the tooth into plaster and sand, take a small piece of gold and weld into a round nugget ; when done it is as strong as before. Pierce out pins left in the back, and solder in usual way.—W. P. ROBERTSON.

Crown Street, Aberdeen.

THE MANUFACTURE OF CELLULOID.

CELLULOID is made by dissolving pyroxyline (or gun-cotton) in camphor, instead of ether or alcohol. To prepare it for treatment with the camphor it is first ground in water. After the water has drained off, it is placed under pressure

in a perforated vessel, and almost converted into a solid body, which, however, still contains enough moisture to prevent spontaneous ignition in the subsequent operations. This mass is now intimately mixed with camphor by grinding them together in water. One part of camphor, by weight, is employed to two parts of pyroxyline, but other proportions can be employed with good results. The desired pigments and other substances are added along with the camphor. After they have all been very thoroughly mixed, the mass is subjected to a very heavy pressure, which removes all the moisture, and also brings the camphor into more close contact with the pyroxyline to aid it in dissolving the latter. The dried and pressed mass is now put into a vessel of the form in which it is desired to have the celluloid. In the top of this vessel is a piston or plunger, so that it can be subjected to the action of a hydraulic press. While under pressure it is heated by steam or otherwise to from 140° up to 265° F., according to the quantity of the mixture. It is kept at this temperature and under this pressure until the camphor has dissolved all the pyroxyline. The temperature increases the solvent power, while the pressure keeps the ingredients in intimate contact. The result is a solid mass perfectly homogeneous throughout.

Another form of the same material, called artificial ivory, is prepared from 100 parts of ivory dust, 100 of pyroxyline, and 50 of camphor. The pyroxyline is ground wet, then pressed until only enough water remains in it to prevent ignition. It is then mixed with the ivory dust and camphor, and pressed between absorbing cushions until all the moisture is extracted. Then 50 parts of nitrate of ethyl are added. The mixture is then left for several hours in a closed vessel until the nitrate is equally distributed throughout the mass. It is next subjected to heavy pressure in heated cylinders, as before described, and rolled between hot rollers. The product thus obtained has the appearance of natural ivory, is free from streaks and spots, is not attacked by moisture, and while hot can be pressed into any shape.

Celluloid, as it leaves the press, is about as dense as sole leather, but hardens in the air, owing to a slight evaporation of camphor. In the finished product there is still a good deal of camphor, and herein is found the essential advantage in the use of camphor over ether, alcohol, and other liquid or volatile solvents. All such solvents are completely removed from the mass, while enough camphor remains in it perpetually to serve as solvent over and over again, and to give it the property of being readily changed into any other shape

at a high temperature without the addition of any other solvent.

By another process a dilute solution of camphor is employed, one part camphor to eight of alcohol, which will not dissolve pyroxyline at common temperatures, but does so when heated. The pyroxyline is ground, mixed with pigment or dye, the water all removed, and one part of solvent added to two parts of pyroxyline, well stirred and put in a closed vessel until the solvent has saturated all parts of it. It is then heated under pressure as before described. The Compagnie Franco-Americaine, at Stains, near Paris, has been making celluloid for over three years, and has a branch at Mannheim, in Baden. The rubber-comb company in Hanover also took up its manufacture, but abandoned it again owing, it is said, to the danger from fire. Renleaux is of the opinion that some experimenter should contrive a method for dispensing with the camphor, and also rendering the pyroxyline less combustible; two difficult problems which Professor Wagner believes are not likely to be accomplished.

Unlike hard rubber, celluloid does not become electrical when rubbed. The odour of camphor can only be noticed when the substance is warmed, or on being rubbed. The numerous uses to which it is applied are too well known to need repetition here.—*Missouri Dental Journal*.

Hospital Reports and Case-Book.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM DECEMBER 1ST TO DECEMBER 31ST, 1880.

Extractions	{ Children under 14	385
	{ Adults	580
	{ Under Nitrous Oxide	318
Gold Stoppings		170
White Foil ditto		19
Plastic ditto		325
Irregularities of the Teeth treated mechanically		403
Miscellaneous Cases		253
Advice Cases		72
Total.....		2465

R. GILES BRADSHAW,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM DECEMBER 1ST TO DECEMBER 31ST, 1880.

Number of Patients attended	1148
Extractions { Children under 14	265
{ Adults	507
{ Under Nitrous Oxide	83
Gold Stoppings	29
Sheets of Gold used, independent of Pellets.....	32
Other Stoppings	484
Advice and Scaling	47
Irregularities of the Teeth	29
Miscellaneous.....	90
<hr/>	
Total operations	1534

R. DESMOND ASHBY,
House Surgeon.

QUARTERLY REPORT OF CASES TREATED AT THE HOSPITAL OF EXETER.

FROM OCTOBER 1ST TO DECEMBER 31ST, 1880.

Extractions { Children under 14	258
{ Adults	568
{ Under Nitrous Oxide and Ether	56
Gold Stoppings.....	26
White Foil ditto	40
Plastic ditto	155
Miscellaneous Cases (Irregularities of the Teeth, Scaling, Advice, &c.)	162
<hr/>	
Total.....	1265

HENRY B. MASON,
Hon. Sec.

British Journal of Dental Science.

LONDON, JANUARY 15, 1881.

WITHIN a very short time nitrous oxide gas has been the subject of discussion at three different professional gatherings. First, at the meeting of the Midland Counties Branch

of the British Dental Association at Manchester, the late Mr. Henry Marsh read the paper which we published in our number of November 1st. At the November meeting of the Odonto-Chirurgical Society at Edinburgh, Mr. Williamson's paper, going over nearly the same ground, gave rise to an animated discussion, of which we give a brief report in our present issue; whilst, in December, Mr. Lyddon read a very interesting communication before the Odontological Society relating to certain exceptional phenomena which may be produced by the gas.

In the course of these debates the best modes of making, storing, and administering the gas were discussed in considerable detail, so that we need say nothing more on these points; but there is one aspect of the subject which, though incidentally referred to both by Mr. Marsh and Mr. Williamson, and especially dwelt upon by Mr. Geo. Lyddon, has not yet, we think, received quite as much attention at the hands of the profession as it deserves or requires. That nitrous oxide is, as was stated by several speakers, "the safest and best anæsthetic known for minor or short operations," there can be no doubt, but as regards its reliability there has been, we think, too great a tendency to prejudge, and even to pooh-pooh, the question. It may, then, be worth while to inquire, Is nitrous oxide a thoroughly reliable anæsthetic? Can it always be depended on to produce the effects which are expected of it? Or what reason have we to doubt this?

So far as we are at present aware, the reliability of nitrous oxide as an anæsthetic was first publicly called in question in a letter which appeared in the 'Times' of May 18th, 1880, and in which the writer, who signs himself "E. W. B.," declares that, although he had twice inhaled twenty gallons of the gas, he had not on either occasion been in the least affected by it. Several answers to this letter subsequently appeared in the same paper, of which the most satisfactory was by Mr. G. H. Bailey, a gentleman who, as is well known, has had, at the Dental Hospital of London and elsewhere, a very large experience in the use of the gas. Whilst admitting that some persons will take a

very large quantity of gas without being affected by it, he says that he has never yet met with an individual who could not be brought under its influence if the inhalation was continued long enough; he instances the case of a hospital nurse, who inhaled it for two minutes twenty seconds without any effect being produced. Mr. Bailey, thinking his apparatus must be out of order, removed the face-piece and examined it carefully, but finding nothing wrong, he again administered the gas, and this time, on giving it for five seconds longer, the patient was fully anæsthetised.

So long as the case of "E. W. B." appeared to be a solitary instance of insusceptibility to the influence of nitrous oxide, we were not disposed to attach much importance to it, but of late it has been supported by several others. Mr. Lyddon related two similar cases before the Odontological Society; two others were mentioned at the same meeting by Mr. Stocken and Mr. Dennant, and in the course of the discussion at the Odonto-Chirurgical Society. Mr. Campbell also mentioned a case in which he had failed to produce anæsthesia.

To enter fully into the various theories which might be advanced to account for these failures would lead us too far and would not be profitable, since we have not before us a sufficiently full statement of the facts of each case to enable us to come to any conclusion concerning them. The opinion tentatively advanced by Mr. Lyddon, and more positively by Mr. Campbell, that habitual indulgence in alcohol might render a person insensible to the influence of nitrous oxide is evidently not defensible, since neither of Mr. Lyddon's patients were intemperate, and one was a lady who was very abstemious in this respect. Personally we should be disposed to agree with Mr. Bailey and assign the failure to want of boldness or of patience on the part of the administrator of the gas. It should be remembered that the chest capacity of different individuals varies greatly, whilst the amount of ordinary respiration varies but little. The capacity of the lungs is usually estimated by measuring the volume of air which can be expired after a deep inspiration. This is called the *vital capacity* of the individual. But even

after the deepest inspiration a quantity of residual air remains in the lungs, which may amount to as much as 250 cubic inches. It might be expected, therefore, that the amount of gas which would be required to replace the oxygen in the lungs, and the time which would be required to anæsthetise the patient, would vary nearly as the vital capacities of the individuals. The *time* would, of course, be also influenced according as the patient respired deeply or the reverse ; and, although the vital capacity of most women is much less than that of man, so also is it more difficult to get them to respire deeply, especially when tired or excited, as in the case mentioned by Mr. Dennant. The probability is that "E. W. B.," Mr. Lyddon's clergyman, and Mr. Campbell's farmer, were big-chested men with very large *vital capacities*, and that the inhalation of the gas was not carried on for a sufficiently long time to enable it to drive out the exceptionally large amount of residual oxygen which their lungs contained. And we should be inclined to agree with one of the writers in the 'Times,' that "it would be as impossible for any person to resist the effects of the gas, if only it be given in sufficient quantity, as it would be to avoid suffocation by drowning." At the same time we cannot deny the fact that our knowledge of the exact mode of action of the gas is not yet complete ; it would, therefore, be wise to enter upon all investigations connected with this subject with an unbiassed judgment. Such cases as those to which we have referred are evidently very rare ; many who have had considerable experience in giving the gas have never met with one, and are therefore naturally incredulous regarding them. We hope that in future any that may occur will be carefully observed and reported in detail.

Literary Notices and Selections.

DENTAL EDUCATION.

An abstract of the Introductory Lecture delivered at the opening of the present Session of the Edinburgh Dental School.

By W. BOWMAN MACLEOD, L.D.S. ED.

OUR School has now been in existence for twelve months, and, like every other institution, has had to encounter all the troubles incident to childhood. These, we may safely say, it has successfully surmounted; and, though still subject to the many dangers which encompass the youthful stage of a new venture, struggling for existence, it presents—thanks to many friends who have ministered to its needs—such a robust and healthy constitution that it requires not a very sanguine imagination to predict for it a useful and prolonged existence.

To you, gentlemen, who are looking forward to the practice of the profession of Dentistry, and who have entered within its walls that you may equip yourselves with the intellectual armature, and acquire the digital expertness necessary to render you worthy of a place in the company under whose banner you have elected to do warfare in the battle of life, this must be a subject of congratulation and thankfulness. There is not one of those—our seniors—who honour us with their presence to-night, and who, I am sure, wish us God speed in our studies, that would not have rejoiced had their youth been blessed with half the advantages which surround you on every side. Theirs the tedium of a long and arduous apprenticeship to the routine of the laboratory, and the up-picking of information in bits by the way, as best they could, having but little of the formularies of correct science to guide them. Yours the advantage of having had matured minds to formulate a course of study, making easier the routine, and more satisfactory the acquisition of the knowledge requisite for Dental practice. Theirs the disadvantage of having almost to start afresh, each one for himself, grasping here and there a principle, as the varied features of various cases presented themselves; then to be met with many difficulties that for a time puzzled them, there being but little of recorded experience to assist them to a ready solution. Yours the advantage of having access to volumes which contain the outcome of years of patient experiment and research, pursued through many failures and much heart-wearing disappoint-

ment, but at last resulting in success. Thus yours the advantage of a thorough and specific training, which places within your grasp the greatest amount of knowledge in the shortest space of time; and, more than all, yours the advantage of having an arena, where, having learned the Why and the Wherefore, you may, for the space of two years, learn, by practice, the How to do.

But, having these advantages, make sure that you do not mistake the opportunity for the possession. Remember, that although these advantages lie at your feet, you must stoop to pick them up. It may be at the expense of many a spinal ache and many a dizziness of head, but bend you must. Knowledge will not rise to you, you must lean down to her. You must bend to your course with patient, plodding, methodical, modest industry, ere you can hope to convert opportunity into possession. You cannot possibly make a success the first, or every time you try; therefore be patient under your reverses. You will encounter many difficulties. Be plodding in your attack upon them. A little bit gained now, and a little bit gained then, and you will surely reach the summit of your desires, when, like Robinson Crusoe, you may exclaim, "I'm monarch of all I survey." You have many things to learn, and but a limited time at your disposal; therefore be methodical in your application, and, notwithstanding the immensity of the ground to be traversed, you will, when the prospect becomes the retrospect, be astonished to find how little you feel exhausted by your effort. And to these three virtues add modesty. Don't aim at being smart, for your smart man is generally superficial. Don't think, because you have looked in at the door of the Temple of Knowledge, that you have mastered all the Furnishings of the House. Don't flatter yourself that when a teacher—be it by book or by word of mouth—has given you a fact that you are to rest content. You must learn and comprehend the principle, of which the fact is but an illustration, otherwise you are but as a parrot, and will remain to the end of your day an insufferable fellow and a half-educated adventurer.

That you are already fully impressed with the importance of the profession on the study of which you have entered I have little doubt, but it may just be possible that, as some are apt to do, you may be inclined to over-rate some of the subjects as set down in the curriculum, and taught under special headings, to the detriment of those subjects which may be designated general. If this be so, I would take this opportunity of cautioning you against continuing in such an error, for two reasons—(1.) In any profession, the mastery of each branch is necessary to make a complete whole; therefore

each subject, whether general or particular, is of sufficient importance to demand not only close attention and study, but thoroughness in knowledge in each and all of the subjects connected with your studies. To you, as students, this may not be so apparent, but you have the united testimony of all who have loved and practised their profession intelligently, that every day has brought them cases of Dental disease so interwoven with constitutional disturbance, and depending upon constitutional faults; and still more frequently have there come under their observation remote pathological disturbances dependent upon Dental disease, that unless they had had at least an average acquaintance with general anatomy, surgery, physiology, and pathology, as well as a competent acquaintance with the specialities of Dental anatomy and surgery, they would have failed to diagnose the disease, and consequently failed to effect a cure. (2.) You have to pass an examination in each of the subjects, as set down in the curriculum, and you must not suppose that because you have announced your intention of practising a specialty, that your Examiners will be satisfied if you have a knowledge of the ground on which you in after life intend to settle. Such was not the meaning of those who projected and carried through the Dental Bill; and your Examiners expect that not only will you have a precise and intimate acquaintance with odonto-chirurgy, but that you, whether *curriculo* or *sine curriculo*, will have also a broad and intelligent grasp of general anatomy, surgery, and medicine. And mark you, if this were not so, the title for which you strive would be but an empty bauble and a grotesque sham, instead of—as I trust it will ever be—a recognised stamp of time methodically spent in the acquisition of necessary knowledge, and the possession of which will be an honoured credential, entitling the holder to the confidence and respect of his fellow-men.

But although this is the case, I trust we will never lose sight of, nor under-estimate the importance of the special branch over which I have the honour to preside, and on the study of which we are now about to enter. All here will admit that in importance it is second to none, and that without a thorough mastery of this department, a knowledge of other cognate subjects will be of little avail. That this is so has been recognised by all the pioneers in our specialty, and during the late struggle for its consolidation, and for the regulation of entrance into its practice, or, in other words, for the elevation of what was but an undefined calling, without a status, into that of a legally recognised profession, no point was more firmly battled for than the thorough ground-

ing of the student in the principles and practice of Dental mechanics, as the true and solid substructure upon which all his other studies were to be built, and without which he could not claim to be a Dentist. Mr. Tomes put the matter very pithily when he said, "The patient—the person most to be consulted—will more frequently suffer at the hands of those who have all the surgical knowledge and no mechanical training, than from those who have a thorough mechanical training, and but little surgical knowledge." You must not, therefore, rest content with a mere theoretical acquaintance with the principles of mechanical Dentistry, but must also make yourselves masters of the practice; not placing your trust in being able to obtain the services of a good mechanic to do your work, for unless you can do it yourself you cannot tell others how to do it, nor, when done, can you tell if it is well done. And, moreover, the exercise given to the fingers and joints, and the habit of precision given to the eye, when constructing artificial dentures, or generally speaking, when working with tools of any description, gives a nimbleness, a suppleness, and dexterity which can best be acquired in youth, and confers an ease and grace in manipulation, which stands in good stead when practising the more strictly surgical operations required by the varied demands of the various oral lesions which will in after years claim your care and attention.

I need hardly state that our profession has made great progress during late years in all its departments; but although this has been the case, it is a matter of congratulation that the restless invention-spirit is still dissatisfied, and looks forward to a still nearer approach to perfection. To this end may it not be expected that this School, nay, the students of this class, may in some degree minister? We are here in a very different position, and are very unlike those of our older brethren, who were in the habit of groping along, each in his own way, laboriously working out each item of knowledge, and learning, by dear-bought experience, the principles of their art. On the contrary, we are here met together to drink at the fountain of knowledge, which has been fed by many tributaries, and which will, as time rolls on, be added to by those who now come to quaff and quench their thirst at its invigorating and life-giving waters.

But this cannot be done if you who drink immediately depart, saying, "My thirst is assuaged, I am contented," but only by your acknowledging the benefits you have derived from partaking at this fountain of knowledge, which has been brought within your reach, and by your remembering that as those who have gone before contributed to the stores by which

you have profited, you also, in return, should pay the debt laid upon you, and do what you can to contribute to the common fund, as your talents shall enable you, so that those who follow may find the fountain more mellow and invigorating, and the measures for their partaking more full and free. In order the more easily to lead to this result, you must not be content to accept of things as they are given to you, or accept as accurate the information imparted. I would have you investigate for yourselves as to the truth of what you are taught. Nor must you be content—that is, placidly content, with the ways of your fathers, simply because they served the purpose required of them, being the best means they had at command. Those who wish now to get in the van of the profession must take advantage of all suggestions, indeed, of all good things which increased knowledge and skill may project or devise; they must be careful not to look upon innovation as an intrusion or impertinent, but rather to consider every suggestion advanced as one to be weighed in the balance of trial, and if approved to be acted upon and upheld, till it be superseded by a better and more efficient method. There have lived, even within the short period of my own professional existence, men whose faith was firmly pinned to bone, or to bone and human teeth, as being the only possible material, or materials, from which comfortable, useful, and beautiful substitutes could be constructed, and who looked upon plate (gold plate that is to say) as a material which was utterly unfit as a base for artificial dentures. Since then we find that not only has gold obtained for itself a firm footing and proved its own worth, but its supremacy has been from time to time assailed by other materials, and in these days has found a successful rival in vulcanite, which, in its turn, stands somewhat in jeopardy by the newer base, celluloid.

I trust that in these introductory observations I have said sufficient to strengthen you in your resolve to study well and to study hard, and to intensify within you that never-to-be-satiated craving for more knowledge, more light—light which is granted only to those who work patiently, ploddingly, methodically, and modestly; light which ever woos upwards and onward, which illumines the dark and uneven pathway of the student, confers a brightness on the matured conceptions of the worker, and sheds a radiant halo around the closing acts of an industrious and well-spent life.

DEATH FROM CHLOROFORM.

MR. ARTHUR J. SHIRLEY, the coroner for Doncaster, held an inquest, on December 30th, touching the death of Benjamin Duke, thirty-one years of age, who died from the effects of chloroform, administered under the direction of Dr. Wilson. The coroner said that the deceased suffered from a tumour on his forehead; about twelve months ago he consulted Dr. Wilson in reference to it, as he wished to have it cut out, but, owing to his habits of life, the doctor thought it would not be wise to have the operation performed then. The deceased was spending Christmas at Doncaster with his parents, and he again consulted Dr. Wilson to see whether he would perform the operation. Dr. Wilson, considering that the man's habits of life had improved, consented to do so; and on Wednesday he attended, along with the house-surgeon from the infirmary, in order that deceased might undergo the operation. Chloroform was administered; the heart's action ceased, and he sank under its influence. Dr. Wilson, in evidence, said that he placed the chloroform on the towel, and Mr. Sharples administered it whilst witness was getting the instruments ready. The first dose consisted of two drachms, and Mr. Sharples placed the towel over his face, allowing sufficient room for breathing. In a minute or two Mr. Sharples asked for a little more chloroform, as he had not enough, and about one drachm was put on, making three drachms altogether. Deceased then struggled very violently. During the struggle his face became very livid, and they stopped giving him chloroform. The breathing became very slow and laboured; he gasped, and witness then drew the tongue forward, and, seeing he was not taking the chloroform well, they endeavoured to restore the breathing. The colour became more purple than usual. They continued artificial respiration, sent to the infirmary for the battery, and tried for an hour to restore breathing. He should say that he died in four minutes after the administration of the chloroform. The pulse was watched all the time. He had given chloroform 2000 times, he should think, and had seen it given frequently, but he had never heard of a case similar to this one. All was done that could be done. In reply to the foreman witness said, in the majority of cases where he had seen chloroform administered, the stethoscope had not been used to test the action of the heart. He was present at the necropsy along with Mr. Tacey and Mr. Sharples, and performed the operation. He found the body well

nourished, exceedingly muscular, and well developed in every way. He examined the heart, and found that it was somewhat flabby. The muscular fibres were very fairly firm, but not so firm as the perfect standard of health. The valves of the heart were a little extended, and the liver was somewhat enlarged. With the exception of the slight flabbiness of the heart, the body was that of a perfectly healthy man. He had no doubt that flabbiness was the cause of the chloroform having such an effect upon him; and death was caused by the administration of chloroform. The flabbiness of the heart could not have been detected by the stethoscope or by any other means. Flabbiness of the heart was very unusual at his time of life. Mr. Tacey agreed with Dr. Wilson's evidence. He agreed that the heart was flabby, and thought that the arteries were a little large. He had administered chloroform for twenty-one years, and had never had a fatal case. He had been present immediately after death. He did not think, in this case, that the stethoscope was absolutely necessary, but it was an invariable practice with him to use it. He always used it as a matter of caution, but in this case, if Dr. Wilson had used it, he would not have been any wiser. The jury found that the deceased "died from the effects of chloroform."—*Brit. Med. Journ.*

ADMINISTRATION OF ANÆSTHETICS.

By WOODHOUSE BRAINE, F.R.C.S.

I FEEL sure that a few cases of anæsthesia, the anæsthetic being given by the method I adopt, will lead Mr. Williams to qualify the opinions expressed in his letter published in the Journal of November 13th.

When Dr. Joy Jeffries came to England and demonstrated the fact that ether could produce anæsthesia as perfectly, and almost as quickly as chloroform, his custom was to "crowd on" the ether; and, having his patients forcibly held by assistants, to render them insensible, *citó, tutó*, but most assuredly not *jucundé*.

If the patient be made to inhale a small amount of ether rapidly, the nerve centres are very quickly brought under subjection, and the patient recovers rapidly, and with much less of that haziness and sluggishness of intellect which always takes place when they are a long time becoming unconscious. I think Mr. Williams will agree with me in this proposition, viz. that, given the same amount of insensi-

bility for any definite time, the smaller the quantity of ether inhaled the better. Let this point be conceded; he will then find that the quickest and, in my opinion, the best method of giving ether is to administer nitrous oxide till the patient is completely anæsthetised, and then to change the face-piece without allowing the inhalation of any air whatever. During the first few respirations, the larynx resents the ether-vapour, and they are somewhat jerky and spasmodic; but the larynx soon becomes accustomed to the irritant, the breathing becomes full, easy, and regular, and there is a complete absence of struggling. When the struggling does occur, the movements are generally referable to dreams which the patient is having; and, when he wishes to alter the position of his limbs or to sit up, in pursuance of the nature of his dream, forcible prevention only makes him struggle more violently to accomplish his object which, if effected in the first place, would have had no practical result, and he would have dropped back into the former recumbent position of his own accord. Should this struggling take place, no attempt should be made to hold the patient in any one position; his limbs should be allowed to move about freely, and he should be permitted to sit up if he desire to do so—only preventing him from pulling off the face-piece.

But, in addition to the trouble saved by not having to hold a patient, the risk of a fatal result, especially when administering chloroform, is much less; for, if the patient be allowed to move freely, the heart has comparatively little work to do, compared with the strain on it which exists when it has to drive a column of blood through vessels which have rigid muscles on each side of them; and, again, this very struggling increases the venous flow, and tends to gorge the heart with venous blood.

There is one other point in the discussion that does not seem to have attracted the attention that, I think, it deserves; and that is, the time in the day at which the operation is performed. I feel convinced that all patients take anæsthetics better the earlier in the day they are given; and I look on from 8 a.m. to 9.30 a.m. as the best time—for then the patient's stomach is empty, digestion having been performed when the patient has been asleep, and the patient has not been awake long enough to become very nervous, and to feel the want of food, and so be faint. In a very nervous patient, who did not sleep the previous night, I have known food vomited in exactly the same condition in which it has been swallowed twenty-eight hours previously.—*Brit. Med. Jour.*

HYGIENE OF THE MOUTH IN SYPHILIS.

DR. E. L. KEYES ('Venereal Diseases') says that on account of the necessity of giving mercury, and of the danger of salivation, lesions of the mouth and throat, which are very obstinate in this disease, should be avoided so far as possible by cleanliness of the mouth and freedom from irritants. Before the mercurial course is commenced, let the teeth be put in order by a Dentist; let all tartar be removed, old stumps extracted; let any sharp angles of the teeth likely to come in contact with the tongue be filed away. Any reaccumulation of tartar during the progress of treatment should be removed. Let a soft toothbrush be used. The toothbrush or powder should be strongly alkaline and slightly astringent. A half teaspoonful of bicarbonate of soda and a teaspoonful of the tincture of myrrh, in a glass of water, or white Castile soap and water, or a weak solution of alum in water, make excellent tooth-washes. With such care mucous patches become less annoying and easier to manage, and the effect of the mercury may be more closely watched, since one is not apt to be misinformed as to the cause, if the edges of the gums become soft and tender. Smoking is also contra-indicated during the first year or two of syphilis, as it is apt to induce a greater number of mucous patches and mouth lesions than would otherwise occur. Tobacco chewing is equally bad, or worse. Highly spiced or stimulating food may help to keep the mouth tender, and should therefore be avoided. A pipe is a dangerous thing in syphilis, owing to the risk of infection, if it is used by healthy persons, because the secretions of mucous patches and syphilitic ulcers in the mouth are specially contagious.—*Chicago Medical Review.*

CARELESS OR CRIMINAL.

A PROPOS of the paper by Mr. F. N. Pedley, which will be found at p. 49, we may call attention to a case reported in the 'Gazette Odontologique' for September last, under the characteristically French heading of "Une manière peu agrééeable d'attraper la syphilis." As if catching syphilis was ever an agreeable proceeding! A young servant girl, healthy and of good character, consulted a Dentist respecting a hollow tooth which had been causing her great pain. The Dentist inserted into the cavity a plug of cotton wool saturated with some sedative application, and told her to

come again in a week. On her return he noticed a small sore on the lower lip, which was somewhat swollen. The ulcer gradually increased in size, the glands under the jaw began to enlarge, and a month later she was obliged to consult a surgeon, who found that the patient was suffering from chancre of the lip and syphilitic roseola. She was under treatment for a month on account of this accident, which was attributed to infection conveyed by the instrument which the Dentist had used. Such cases are probably as rare as is the inoculation of syphilis by means of the vaccine lancet, but the fact that they do occasionally occur should keep practitioners alive to the necessity of taking all possible precautions against it. Had the patient been so disposed, she might probably have recovered very heavy damages from the practitioner by whose carelessness she had received so serious an injury.

THE PLEASURES OF SCIENCE.

WE are glad to know that there are some in the profession who have already experienced the advantages to be derived from the pursuit of some scientific study as a relaxation from the routine of practice. We may mention, as an example, that Mr. Crowther, L.D.S., of Wakefield, was recently awarded a silver medallion by the Wakefield Naturalists and Philosophical Society as the author of the best original paper read before the Society during the past year; the subject of the essay was "The Peculiarities of Plant Life with respect to Colour." It is in early life that such studies are begun with the greatest prospect of success, and we would earnestly impress upon our younger brethren to take to heart the advice which is given them by Mr. Woodhouse in the course of the address to the Odontological Society, which will be found in this issue of the Journal.

PUZZLED.

AN elderly lady, who was handling a set of false teeth in a Dentist's office, asked, "Can a body eat with these thing?" "My dear madam," replied the consultant, "mastication can be performed with a facility almost equal to nature itself." "Yes, I know all that," answered the old lady, "but can a body *eat* with them."—*Dental Jairus*.

MOTION IN TEETH.

TEETH appear to be motionless—immovably fixed in the jaws—but they are not. They are in constant motion and swaying to and fro, backward and forward, and grinding and chafing against each other without intermission. Of course this is very slight, perfectly imperceptible to the eye and touch, except their abnormal action—motion in excess—which is evinced by disease, as in inflammation of a nerve, ulceration, salivation, &c.

There are several proofs of our position. Among them are two, which must have come under the observation of most Dentists.

Perhaps you never attempted to fill two teeth solidly together. I would not acknowledge it if I had; it is too unprofessional. But I presume you have seen such a case. But did you ever see such a one which was successful for one year? The filling from one or the other broke away, though it may have had to bring a piece of the tooth with it; or else in their struggles both become sensibly loose. Did you ever cap two or more teeth together to prevent the occlusion of others in the regulation of teeth? Then you have in this way discovered the same peculiar irresistible power that almost defied your effort to confine the bound teeth to stationary positions.—*Missouri Dental Journal*.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN,
40, LEICESTER SQUARE.

ANNUAL GENERAL MEETING, JANUARY 10TH, 1881.

ALFRED J. WOODHOUSE, Esq., President, in the Chair.

ON taking his seat the President declared the ballot open for the election of officers for the ensuing year, and Messrs. Isidor Lyons and George Payne were chosen to act as scrutators.

Whilst the voting was in progress, Mr. WALLIS showed his adaptation to Dental requirements of Mr. Lennox Browne's lime-light illuminator for the laryngoscope, and explained it in detail. Ordinary coal gas could be used instead of pure hydrogen, with but little diminution in the intensity of the light, whilst the oxygen required could be either made in quantity during spare time and kept stored for use, or it

could be made as required during the progress of an operation by means of Chadwick's oxygen generator. The cost of this gas was about $2\frac{1}{2}d.$ per hour, exclusive of time and labour consumed in making it, and, if Chadwick's apparatus was used, these items might be disregarded altogether. The cost of his own apparatus had been nearly £14, but then it had been made to order; if several were made at a time the price would be a good deal less. He had been experimenting with it for two months past, and had found it greatly superior to any other artificial light which he had tried. It was especially useful on foggy days, when the supply of ordinary gas was generally very deficient.

Mr. LENNOX BROWNE said that although Mr. Wallis had greatly improved his own original design, he did not consider it yet perfect; and as he knew Dentists generally were ingenious in contriving, and often possessed of much inventive talent, he hoped that the introduction of his apparatus to the profession would lead to its being still further improved and perfected.

Mr. HUTCHINSON said that oxygen gas could be bought in bottles holding a hundred gallons compressed into a small bulk, and he thought many would find these convenient.

Mr. WEISS stated that nitrous oxide gas could be used instead of oxygen with nearly the same illuminating effect; and, as Dentists always had this gas at hand, it might often be convenient to substitute the oxide for the pure gas.

The PRESIDENT asked whether the bright light would not be injurious to the eye-sight of the operator?

Mr. WALLIS answered that he had not found it at all fatiguing to the eyes, though he had used it for two hours at a stretch. The glare was decidedly irksome to the patient, but this was readily obviated by providing him with a pair of tinted spectacles.

Mr. OAKLEY COLES introduced to the notice of the members a very strong and cheap operating chair for hospital use, made by Smale Brothers, of Great Marlborough Street. With movable seat, head rest, and bracket, the price was only £3 10s.

Mr. IBBETSON proposed, and Mr. SAUNDERS seconded, a motion that Mr. Fletcher on his retirement from practice should be made an honorary member of the Society.

The PRESIDENT said that Mr. Fletcher had been for many years an ornament to the profession, and in making him an honorary member he considered that the Society would confer as great honour on itself as on that gentleman.

The motion was carried unanimously.

Mr. DENNANT referred to the remarks made by the Presi-

dent at the November meeting on the subject of Ancient Egyptian Dentistry, and stated that he had been able to obtain a further confirmation of the opinion then expressed by Mr. Woodhouse. In the Brighton Museum was the head of a mummy which had always been credited with possessing a tooth which had been stopped with gold. But on examining it carefully Mr. Dennant found that the gold consisted only of a thin superficial layer *on* the tooth, which had not really been stopped at all; there were also visible traces of gold on the margins of the hard palate.

The PRESIDENT announced gifts to the museum from Messrs. J. A. Gartley and W. S. Burrows. Mr. Browne-Mason, of Exeter, had sent for exhibition a curiously malformed left upper molar, which he had extracted from the mouth of a youth aged seventeen.

Mr. F. CANTON showed models of the mouth of a child aged four years. He had only four teeth in the upper jaw and two in the lower, whilst the next child in the family, two years younger, had all its teeth.

Mr. OAKLEY COLES said he hoped that some steps would be taken on behalf of the Society to obtain a cast of the mouths of the "Midgets" now being exhibited in London. From what he had heard he believed that a model of the mouth of the Mexican girl would show some curious and interesting features.

The PRESIDENT then called upon Mr. Parkinson to read his report as Treasurer.

Mr. PARKINSON said that the state of the Society's finances was, as had been usual of late years, very satisfactory, the receipts during the past year having amounted to £548, and the expenditure to £458, leaving a balance in hand of £89. One noticeable feature in the accounts was the expenditure of £96 in providing additional show cases for the museum. During the year six deaths had occurred among the members, and there had been five resignations; ten members had been removed from the list on account of non-payment of subscriptions. Twenty-three new members had been elected during the year. The roll of the Society now consisted of 113 resident, 206 non-resident, and 53 honorary and corresponding members.

The SECRETARY then read the Curator's report. During the past year the work of rearranging the contents of the museum and preparing a new edition of the catalogue had been completed by Mr. Willoughby Weiss, assisted during the early part of the year by Mr. Bernard Magor, and he had to express his thanks to these gentlemen for the manner in which they had carried out the work entrusted to them.

New cases had been put up for the better display of the specimens. The catalogue was in a forward condition and would shortly be printed.

Mr. WEISS reported that the library was in a very satisfactory condition, and had been more largely made use of both by members and students than in previous years. As very few works bearing on Dental science had been published during the past year, the number of books added to the library had been small. He was glad to be able to add that not a single volume was missing.

The Scrutators announced that the list of officers for the year 1881, which had been suggested by the Council, had been unanimously approved of by the members. The following is the list:

President.—Thomas Arnold Rogers, Esq.

Vice-Presidents.—Resident: Joseph Walker, Esq., J. Smith Turner, Esq., Charles S. Tomes, Esq. Non-resident: Alfred O'Meara, Esq. (India), J. E. Rose, Esq. (Liverpool), Samuel Lee Rymer, Esq. (Croydon).

Treasurer.—James Parkinson, Esq.

Librarian.—Felix Weiss, Esq.

Curator.—S. J. Hutchinson, Esq.

Honorary Secretaries.—J. Howard Mummery, Esq. (for Foreign Correspondence), F. Canton, Esq. (Council), T. F. Ken Underwood, Esq. (Society).

Councillors.—Resident: J. Oakley Coles, Esq., W. H. Woodhouse, Esq., Edwin Saunders, Esq., T. Chartres White, Esq., G. Wallis, Esq., W. F. Henry, Esq., Alfred Coleman, Esq., H. Moon, Esq., J. Stocken, Esq. Non-resident: W. A. Hunt, Esq. (Yeovil), T. W. G. Palmer, Esq. (Cheltenham), T. J. Browne-Mason, Esq. (Exeter), W. Williamson, Esq. (Aberdeen), J. E. Palmer, Esq. (Peterboro'), William Fothergill, Esq. (Darlington).

Mr. JAMES PARKINSON then proposed an alteration of Bye-law 19, relating to the election of the president. The law at present directed that the president should be selected from among the resident members only. He proposed that it should be amended as follows: "That the Council may recommend for election a President from among the non-resident members not oftener than once in three years." The alteration would enable the Society to confer honour on many very valuable members.

Mr. WEISS having seconded the motion,

The PRESIDENT, before putting it to the vote, said he did so with great pleasure, since the existing law debarred from the president's chair many good men who would do it great honour.

The resolution was carried *nem. con.*

The PRESIDENT then proceeded to deliver his valedictory address.

Gentlemen,—The year during which you have given me the high privilege of being your president has at length come to an end, and I now for the last time address you from this chair.

I feel conscious that its duties might have been far better fulfilled, but though I truly feel this, I have at least this satisfaction that my health has permitted me to attend to the business of my office at all your meetings, a result which I scarcely hoped for when I accepted the chair.

In my inaugural address I traced the history of our specialty during many past years, a period of the greatest importance to us. I think that the events of the year now expiring have an equal meed of congratulation; for as a profession, and a society, we have, I believe, been making good and steady progress.

We have seen the British Dental Association hold a special general meeting, in which many weighty topics were considered relating to the efficiency of that body in carrying out the Dentists Act, which to us and the public is the most important legislative measure that has yet been passed connected with our profession.

This meeting was followed by an interesting paper by Mr. Coleman; and this, after a short interval, by another gathering to present testimonials to those gentlemen who had done so much to bring us to the position we now occupy. This event was, I consider, the culminating interest of the day, for we all felt it a delight to be able, in however imperfect a way, to show to Mr. Tomes and to Mr. Turner the appreciation in which we held their great work and the sacrifices they had made for their professional brethren.

At the dinner which followed, other, and more savoury subjects were presented for discussion, and were, I think, duly appreciated; after which both pleasant and profitable things were said, and we parted company that night feeling that we were more closely united than we had been before, and that our body was both more compact and stronger, and better able still further to advance in the onward path of progress.

The British Dental Association may congratulate itself on having already two branches, which are showing energetic life, and will, I trust, bear good fruit. It, however, needs more subscribers that its funds may enable it efficiently to fulfil the work for which it has been called into existence.

But coming back to the more immediate concerns of our

Society, I think that we may consider that the session has been one of interest. On our first evening we had a paper by Mr. Oakley Coles, on Deformities of the Upper Jaw, and an ingenious attempted classification of them into typical forms by a method of measuring their several proportions. He suggested a series of names so as to define each variety. He propounded ingenious theories as to the cause in foetal life for these malformations, and considered how far such conditions were hereditary, and an indication of deterioration of race. We had a lively discussion on this paper on a later evening, there not being sufficient time for its consideration on the evening on which it was read.

Dr. Lauder Brunton gave us a very interesting and valuable paper on Nervous Affections connected with the Teeth, a paper which will well repay our members carefully to peruse. In it he scientifically traced the track through which the irritation set up in the teeth passed, producing spasms in the accompanying vessels in its course, and developing pain in comparatively remote regions—pain which is too often considered to arise from other causes, and treated constitutionally when the seat of irritation should have been first sought for, and the cause removed. He illustrated his paper by many cases, and, in the discussion which followed, others were brought before us by members, all showing how important it is in cases of nervous pains, especially of the head and neck, carefully to examine the teeth before deciding the character of the neuralgia.

To Mr. Arthur S. Underwood we were indebted for bringing before the Society for the first time the operation of Nerve-stretching. He described cases of terrible neuralgia which had existed for years, and which no remedy then known could relieve. In one, after years of suffering, the patient was permanently cured by two operations of nerve-stretching. Many other cases were given in which an equally good result followed this operation, and in none had any ill effects followed the stretching of the nerve, though in two death had followed the operation, one from hæmorrhage, and the other from erysipelas. We must all rejoice that we have in this a cure for cases of suffering which before resisted all known remedies.

Mr. Edwin Canton gave us a most interesting series of cases of great constitutional disturbance, caused by the absence of sufficient masticating power, which were cured by artificial teeth being supplied to the patients. He also reported some cases of epilepsy and paralysis, which he considered due to dental irritation.

On the same evening we had a paper by Mr. Mummery

on a remarkable series of cases of diseased conditions produced by irritation of the dental pulp. One of strabismus, accompanied by blanching of the hair on one temple, caused by defective teeth. When they were removed the squint was cured, but the hair continued white. Another case, where deafness was cured by the removal of a tooth. Also several other curious instances of the relief of severe and remote pains by skilful Dental treatment.

Mr. F. R. Lloyd, of Agra, favoured us with a short paper describing the case of a lady suffering from tumour in the upper jaw, which he was able to diagnose as cancerous from the microscopical examination of the periosteum of the third molar, which was diseased, and which he removed. The tumour was afterwards eradicated, and the patient lived for many years without any return of its growth, which he attributed to the early discovery of its character.

Dr. Arkovy, on the same night, gave us a paper on papilloma, which you must all have listened to with much interest.

Our last evening was occupied with the discussion of the advisability of retaining or removing the first permanent molars—a subject of considerable importance.

The time for casual communications has always been well employed, for it gives the opportunity of bringing cases of interest from our every-day practice before the Society, which otherwise would be only confided to a chosen friend or two, but which often are very teaching, and far too good to be lost to the profession at large.

Both the papers and casual communications have been followed by active discussions, showing that the subjects were well chosen and were interesting to the members.

To-night you have been asked to confirm a proposal of your Council that every third year your President may be elected from among the country members, and I am glad that you have given your approval to the measure, for you will thus enjoy the advantage of having in this chair most valuable men who, until now, have been debarred from the office by the laws of the Society. We are the Odontological Society of Great Britain, and I consider that all the members should be eligible to all the offices of the Society, and this you have now enabled them to be.

We must now turn our thoughts to those who have been called away from among us by death during the past year.

We have to lament the loss of Mr. W. A. Roberts, of Edinburgh, a former Vice-President of our Society, and one who was always active in advancing the interests of our profession.

Mr. J. D. Garratt, of the Isle of Man, Mr. Gillam Mosely, of Sheffield, Mr. H. Baron Rodway, of Torquay, and Mr. P. S. Boulger, of Norwich, are also members of our Society who have passed away.

We have to lament the death of a very gifted honorary member of our Society, William Sharpy, M.D., F.R.S., who for forty years held the Chair of Physiology at University College. Indeed, he founded the practical teaching of the Science of Physiology, and his works on Anatomy and Physiology are in the highest repute throughout the world. In these books due prominence is given to all that was known of the development and structure of the teeth when they were written.

We have also to deplore the loss of another honorary member who attained high eminence in the scientific world, who died last year at the ripe age of eighty-seven.

The late Mr. Thomas Bell was educated as a surgeon, but from an early age practised as a Dentist, and continued to do so till 1860, when he retired and went to live at Selborne, occupying the house rendered famous as the residence of the Rev. Gilbert White. A more suitable successor could scarcely be found to that naturalist.

It would be out of place here to enumerate all the honours that were heaped upon Mr. Bell; or to mention all the works on scientific subjects he published. Suffice it to say, he was recognised in all countries as one of our leading men of science and honored accordingly.

The career of Thomas Bell should be an incentive to young men now entering the profession to follow his example and not rest satisfied with the position it gives them, but taking up some study, seek to occupy their spare hours with it. They will thus enjoy their leisure during the active years of life and have resources to occupy it when they retire.

With some knowledge of geology every hill, every railway cutting, every river bed or sea cliff has an interest. Or if botany or entomology have been studied, a walk which otherwise would be uninteresting is full of delight. If sketching be taken up, nature has new beauties, for you have learnt how to appreciate a landscape, you know why it is beautiful, and having understood the mechanism of it, it remains pictured in your memory. If archæology or architecture be studied, every building has an interest that you see.

With some knowledge of the physical sciences all nature has an interest, and life only seems too short for the appreciation and enjoyment of the wonders around you. Then there is music, with its refining influences, and painting, with its

engrossing interest; chemistry and electricity, with their magical results. Any or all of these you have some time to study; and with a mind cultivated thus, leisure is a delight, be it the quiet evening, the half-holiday, or the longer vacation; and the prospect of declining years with enforced absence from the operating-room is not to be dreaded, but rather looked forward to with longing desire.

Without such resources our work becomes drudgery and our leisure irksome; there is no relaxation for mind or body, and men are apt to take up habits which destroy health and unfit them for the discharge of the duties of life.

Our profession has lost one during the last year, bearing a name well known and honored for two generations, whose death, though he was not a member of our Society, should not, I think, be passed over in silence. I refer to Mr. George Darby Whaite. His father was Dentist to George IV, and he, after studying in Paris, passed the College of Surgeons in 1824, and then succeeded to his father's practice; this he conducted till 1843, when he was induced by a member of the Imperial Family of Russia to go to St. Petersburg; there he remained for some years, but at last returned to London. He was one of the Presidents of the College of Dentists, which office he held for some time.

Although not a member of the Odontological Society, nor indeed a countryman of ours, I feel I must not omit to notice the death of one whose name is familiar to us all—Dr. Samuel Stockton White, of Philadelphia, U.S. He originally practised as a Dentist, but for many years has been a manufacturer of mineral teeth and Dental requisites, and these he brought to such perfection that there are few Dentists in any part of the world who are not indebted to him for some of their choicest instruments. For our own sakes let us hope that his mantle has fallen on one who will continue his good work.

From various causes certain defaulters among our members have not been removed from our list for the last few years; but lately the Council decided that ten who had not paid their subscriptions for from three to five years should be struck off and their names will therefore cease to appear among our members.

Besides these, we have one resident and three non-resident members who have retired, so that altogether our loss in members this year is seventeen.

There are, however, twenty-three new members who have been elected during the year, so that we close our annual report with an increase in numbers.

In this age of progress it is pleasant to know that our

own specialty has at last been aroused to advance, and each year sees it gaining both in the scientific and social world, but much land has yet to be conquered and occupied, and it behoves all of us to bestir ourselves to further advance the interests of our profession. We can do so collectively by our societies and associations, but we must remember that these are composed of individuals, and that as are the units so will be the whole body.

Let us each, then, see that we act loyally to each other, and to our patients, each speaking of his fellow-practitioner as if he was at his elbow, and each treating his patient as if he himself were the patient instead of the operator. If all thus act, the time will not be far distant when men will be proud to say that they are Dentists, for all will speak well of them.

This year is to be a stirring one in this city. The International Medical Congress is to hold its meeting here in August, and we have a Section in its programme. Our Society must play an important part in these proceedings, and it must be a satisfaction to you all, as it is to me, that we shall have a President who will uphold the dignity of our Society in a manner that few can.

And now, in resigning the chair to him, let me once more thank the Society for the honour they have done me in placing me in it. Let me also thank the Council for their punctual attendance at all times, and for their patience in considering and discussing difficult questions brought before them, and for their courtesy to me at all times. To our most worthy Treasurer I am sure I may add your thanks to my own for his long and unwearied devotion to the interests of the Society. But personally and specially I have to thank our Secretaries for their intelligent and indefatigable assistance, without which I am sure I could not have fulfilled the duties of my office even in the imperfect way in which I have performed them.

It is with great pleasure that I resign this chair to one who, being known and tried, will, I feel sure, not disappoint your most sanguine anticipations.

Mr. E. SAUNDERS proposed that the best thanks of the Society be given to the President for his assiduous attention to the duties of his office. This having been carried with applause, thanks were voted to the Treasurer, Librarian, Secretaries, &c., for which Messrs. Parkinson and Hutchinson replied.

The proceedings then terminated.

ODONTO-CHIRURGICAL SOCIETY.

ORDINARY MEETING, HELD 9TH DECEMBER, 1880.

WALTER CAMPBELL, Esq., L.D.S., President, in the Chair.

THE minutes of the previous meeting having been read, and other formal business transacted, the PRESIDENT called upon Mr. Hepburn to open the discussion upon Dr. Williamson's paper on "Nitrous Oxide as an Anæsthetic," and Mr. Macleod's communication on the "Combination of Ethidene Dichloride with Nitrous Oxide," of which we have already published abstracts.

Mr. HEPBURN had little to say on the subject. He agreed generally with the conclusions at which Dr. Williamson had arrived on the several points to which he had called their attention in his paper. He thought nitrous oxide, whatever its physiological effects, one of the safest and best anæsthetics they had for minor or short operations. He had met with few cases of an exceptionally marked character, which he attributed to the fact that when he did give it he gave plenty of it, and with confidence. Beyond loosening the necktie, he made as few demonstrations as possible before the patient, in fact doing nothing to excite any fear or apprehension they might have in regard to it. His practice was, however, in all but exceptional cases, to dissuade his patients, particularly the young ones, from the use of that or any anæsthetic, believing that the effort and courage called forth in submitting to have a tooth extracted would certainly tend to strengthen their moral, if it did not their physical character. He did not make use of the supplemental bag, feeling that the purer the gas the more rapid and profound the anæsthesia, and that a gallon or two more or less of gas was of no consideration, if that end were secured. In regard to the question of fees, Dr. Williamson seemed to think that when the race of educated and thoroughly trained men appeared upon the stage, their fees must necessarily be higher than what is accepted by many now, and, as a consequence, many people would be deprived of the services which they now receive from the present race of Dentists. He thought they had nothing to apprehend in that direction. On the contrary, the public would reap many of the advantages to be derived from skilled labour, and probably at quite as moderate a rate. No beginner, however talented, would expect to get the same fees which a man of long experience and practice could command. It was so in medical practice, and must be the same in

Dental ; while one man commands his guinea or two, another will gladly accept the shilling or more for apparently the same work, both having passed through the same initial training.

Mr. WILSON was sorry that he could not take as favorable a view of the subject as Mr. Hepburn did. While giving nitrous oxide or chloroform to patients who desired either, he, as a rule, endeavoured to restrict the use of anæsthetics to cases in which more than one tooth had to be removed. The choice between the two was, from his view, a choice of evils, as, while giving the preference to nitrous oxide for the ease and rapidity of its administration, as well as the (in his experience) entire absence of the nausea and vomiting which so frequently followed the exhibition of chloroform, he could not regard the cerebral congestion or temporary apoplexy it produced as being free from danger, in so far as it might leave the vessels in a worse state than it found them ; and his objections were more decided in regard to using it in the case of full-blooded or apoplectic-looking patients, and to any subject to epileptic attacks. Complaints of headaches, referred by the sufferers and their friends, rightly or wrongly, to the effects of the gas, must be familiar to all present. These headaches, in the great majority of cases, soon passed away, but, in a few, weeks or months passed away before their liability to return, on slight causes, disappeared. He had never used home-made gas, and gave the compressed direct from the bag. As regarded the supplemental bag, he only used it when giving the combined anæsthetic, as recommended by Mr. Macleod, preferring to use a little more of the oxide, rather than allow the patient to inhale the carbonic acid, necessarily mixed with the expired gas. He quite agreed with Dr. Williamson as to the advantages claimed for the hawk's-bill forceps, more especially on the right side of the jaw. He would not be surprised if it was found that patients generally paid the penalty of more severe after-pain, when several teeth had to be extracted so hurriedly as the transient effects of one application of the gas necessitated. His experience of the combined ethidene dichloride and nitrous oxide was too limited to be of any value.

Mr. GEO. W. WATSON.—The opinion I hold in regard to nitrous oxide gas is that it is the safest and best anæsthetic known for short Dental operations, provided narcosis be made complete, and the operation be not too difficult. I endeavour to get the patient to bear the operation without the administration of an anæsthetic. However, if this fail I have no hesitation whatever in giving the gas. It has

been administered by me to people suffering from all kinds of nosological taints, without any apparent bad after-effects. As regards the danger of cerebral congestion resulting from the administration of the gas, mentioned by our friend, Mr. Wilson, I do not lay much stress upon this. That there is a certain amount of cerebral congestion I quite admit, but I have no doubt this rapidly disappears on the readmission of air. If this were a frequent source of danger from nitrous oxide narcosis, surely out of the thousand upon thousand cases where it has been used during the last six or eight years, we would have some recorded instance where this injurious effect was traced to its use as an anæsthetic; but, so far as I am aware, no authentic record of such exists. I agree, however, with Mr. Wilson in this respect, that I do not use the supplemental bag in administering the gas, thinking it better to give the gas pure; the mixture of N_2O and CO_2 , which is given the patient by this means, being apt, I should say, to cause disagreeable after-effects, headache, &c. I have used ethidene-dichloride and nitrous oxide once or twice, and think the combination will prove a very useful anæsthetic for prolonged operations.

Mr. MACGREGOR.—My experience with the gas has, on the whole, been pretty satisfactory. During the whole of my practice, I may say that I have only had two cases which caused me to feel uncomfortable, or I might say, alarmed. One was that of a gentleman of about seventy years of age, of an apoplectic tendency, who called to get a number of loose teeth, both upper and under, extracted, preparatory to getting in an artificial denture. I gave him the gas at his request, and certainly the appearance he presented while under it was very alarming; the pinched nose, cheeks, and the congested blood-vessels of the head and neck, proclaimed him to be in a very dangerous condition. I, however, extracted the whole of the under teeth, and I was certainly very glad to see him shortly afterwards show signs of recovery. He made the remark, when well out of the gas, that it was a capital thing, as he felt nothing while under it, and wanted more, to have the upper teeth removed. I refused, however, to give it, at the same time not giving my reason. I said that he had had enough for one day, and that he had better have the teeth removed without taking the gas again, as they were pretty loose, and would give him little pain. I knew that he would never be in a position to require to take the gas again, or I should certainly have told him that it would have been most dangerous for him to do so. The other case was that of a young lady, who had been in delicate health for some time,

who called to get a tooth extracted. I gave her the gas, at her urgent request, and, after removing the tooth, was rather surprised to see that there was no return to consciousness, and that the breathing had ceased. It struck me to look into the mouth, and there I found that the tongue had fallen back over the larynx, so as to prevent air getting into the lungs. I pulled forward the tongue, and, immediately afterwards the patient gave a sigh of inspiration, and shortly returned to consciousness. I told the lady the condition she had been in, and advised her not to take the gas in future. I quite agree with Dr. Williamson that we should disturb the patient as little as possible previous to administering the gas, as any little excitement then is sure to do the patient harm. It is of the utmost importance that the operator should have every confidence in himself, as it is sure to react, and give the patient confidence.

Mr. MACLEOD said—After a long experience of nitrous oxide, dating from 1867, he had no hesitation in saying that it was a most useful and safe anæsthetic. Prior to, and for some time after, its introduction to the profession in a liquid form, he had been in the habit of manufacturing it for himself, and could not say that he had ever detected any difference in quality between the home-made and the manufactured. But one thing had struck him, viz. that there seemed, and was, a great difference between laughing gas, as exhibited in the lecture room, and the laughing gas, as used anæsthetically. This difference he believed to result from the fact that in the distillation of nitrate of ammonia there was given off an analagous product to the foreshot which first came from the worm in the distillation of whisky. He had never attempted to analyse this product, but had frequently tested the nitrous oxide foreshot experimentally, with the invariable result of inducing violent or extravagant demonstrations, a state of excitability which he had failed to produce on the exhibition of N_2O , either simpliciter or diluted with atmospheric air. The sulphate of iron and caustic potash through which the gas was passed and washed were only of use during the passage of this foreshot, as after its dissipation into the air, or its absorption by the wash solutions, the gas could be freely and innocuously breathed warm and direct from the retort, without passing through these wash bottles. He would not, however, advise the discarding of them, as their use was a prudent safeguard against inattention in the manufacture, and a guarantee of the purity. Making his own gas necessitated a gas-holder, and, though now using the liquid gas, he retained the metal gas-holder still, as an intermediary, considering it much more convenient,

being free from the distressing "whizz" which accompanied the passing of the condensed gas from the bottle to the indianette bag, and so alarmed, or at least annoyed, susceptible patients, whose nervous sensibility was exalted by previous suffering, as well as being free from the alarming accident of an explosion of the bag, which has given rise to many "curious episodes" in the administration of nitrous oxide gas. To exhaust the subject of bags, he would express his indebtedness to that adjunct to the face-piece, without which it would not be complete, viz. the Cattlin's bag. He gave it little consideration as a means of economy, but distinctly favoured it as an aid to unimpeded breathing, and as a complete antidote to that feeling of chokiness of which patients complained when inhaling the gas through a tube, however large its diameter. He gave the gas freely and confidently, never having, in about 3000 cases, met with any seriously alarming symptoms in the case of adults, although, in the case of those under puberty, he had occasionally had opisthotonos, a state which was easily induced in children of nervous temperament, if the exhibition was carried to the stage of stertorous breathing. Of course he had had his share of demonstrative patients, the demonstration sometimes arising from some lately-experienced and deeply-impressed mental excitement, but more frequently from working in the mouth when the subject was in a semi-conscious state. The only people to whom he refused to give anæsthetics were those whose systems were saturated with alcohol, and who, of course, were suffering from alcoholic congestion. Since the end of February last he had been in the habit of combining ethidene-dichloride with nitrous oxide, when more than one tooth was to be extracted, and with most satisfactory results; the narcosis induced was more profound, and the duration of anæsthesia was prolonged, enabling the operator to perform more extended operations in the mouth with greater confidence and less hurry. It reduced the congested appearance of the face, and modified very considerably the muscular rigidity. The recovery was rapid, and the experience pleasant. In eighty cases no bad result had ensued, although after-headache had been complained of, a circumstance which he thought might be traced to other causes than the anæsthetic. No sickness or vomiting had occurred during the operation, but in several cases that had been reported as occurring after reaching home. It had been much used by Mr. Clover, who bore testimony to like good results, and who had only one death to report in 1877 administrations, and that one from ethidene exhibited alone, and not from the combined anæsthetic, post-mortem

showing disease of the heart, sufficient to account for the fatal result. He had little doubt that ethidene-dichloride, in combination with nitrous oxide, had a great future in Dental surgery.

The PRESIDENT—If the physiological action of nitrous oxide gas is not yet clearly demonstrated, we certainly have acquired a large amount of practical knowledge in its administration, since Mr. Fox brought this subject before the Society. Some of you will remember when Mr. Visick, then of Berwick, demonstrated the simplicity and efficiency of the gas as an anæsthetic before the members of this Society, in March, 1869. I was the first of the two patients then successfully operated upon. I had previously taken chloroform upon several occasions, but disliked it greatly. The new anæsthetic I was delighted with, and set myself to acquire all possible information about it. Having been invited by Mr. Visick, I went to Berwick, saw the gas made, and given to several patients under different conditions, and was still more favorably impressed with its advantages over chloroform as an anæsthetic. Since then I have given it for several operations other than dental successfully, such as excision of a tumour from the breast of a female, for fistula in ano, cutting off toe nails, extracting polypi from the nose. I must say for a time I had more anxiety when giving the gas than I have now. I have no doubt this was caused by two cases which gave me not a little anxiety at the time. Curiously enough the one case happened very shortly after the other. In each the breathing stopped and the head dropped on the breast. Pressure on the thorax speedily restored breathing, and all went well. I have given the gas where there has been lung disease; and just last week I gave it to a lady with very weak action of the heart, to her great delight. In all extreme cases, however, I have either the consent or the presence of the family physician. I quite agree with Dr. Williamson that, when an anæsthetic is given, it ought to be given until anæsthesia is complete, and the less fuss made in preparing to give it the better. Certainly the rule is that patients can breathe quite freely without undoing any articles of dress—they don't button themselves up tighter before coming to us. We all know from experience that some patients take much more gas than others before yielding to its influence. This is so in all anæsthetics. I had a case a few years ago, somewhat peculiar, which may be worth mentioning. A gentleman farmer called to have some teeth taken out, and, wishing the gas, I gave it to him. I continued to do so until I had administered a larger quantity than I had ever done before. Feeling sure that something

must be wrong with the apparatus, as the gas was taking no effect upon him, I removed the face-piece and operated. Afterwards, I asked him how many tumblers he could stand without feeling the effects of it (the whisky). He replied, "I am not in the habit of doing so, but I can take *eight* without being touched by it. I took seven with your friend, Dr —, the other night, while he only took *two*, and, though he was nae fu', he just had plenty!" I think there would be a corresponding difference in the quantity of gas to produce anæsthesia between my farmer patient and my medical friend, as the difference of their toddy-drinking powers. For some years I have used the Cattlin's supplemental bag, both for economy and for comfort in breathing. At one time I made my own gas, but gave it up, as it took too much time. I had expected ere this that competition would have reduced the price of the compressed gas, making it more generally available. I have to thank Dr. Williamson for his paper on this fertile subject, as the prolonged discussion has proved.

Dr. WILLIAMSON, in replying, said that, in regard to the side question of fees, and the dismal view he had taken of the time when all would have diplomas, he believed that he was justified in making the statement that the poorer classes will not be much better off than they are now, because, whatever the natural adjustment of circumstances may do, it seemed to him that the result would be that those who practised among the poorer strata of society would be obliged to confine themselves almost entirely to mechanical Dentistry and extractions, as proper conservative Dentistry and low fees were incompatibles, a considerable time being required for the performance of Dental operations; and it was in this respect that the reference to the low fees of some medical men was hardly applicable for purposes of comparison, because the circumstances of practice are so entirely different. He agreed with Mr. Wilson that there was a certain amount of cerebral congestion produced by nitrous oxide, if the suffusion of the conjunctiva, seen in many cases, was to be taken as evidence. It was, however, difficult to determine whether it was the cause of the headache sometimes complained of afterwards, because cases are met with where the same patient may on one occasion suffer from it, and at another time there would be no unpleasant symptoms whatever, which goes to show that much depends on the physical condition of the patient at the time. If cerebral congestion existed to any extent, one would expect that more serious results would follow in the case of elderly people, but it is wonderful that no cases are recorded where apoplexy occurred either at the time or so soon afterwards as

to give a suspicion of cause and effect. Some members seemed to think that there was danger in giving it to those with short necks and red faces, the popular type of the apoplectic tendency, but it must be remembered that these supposed characteristics are very often entirely absent, and he did not think the possession of them was of much importance in the question of administration of gas to such a person.

The discussion having occupied so much time, the President suggested that the consideration of the other subject on the billet should be deferred till next meeting, as it was one which was of great importance, and would of itself afford ample scope for an evening's profitable occupation.

The members concurred, and the consideration of alveolar abscess was adjourned till January 13th, 1881.

Cases of interest having been called for :

Mr. WILSON, in exhibiting the model of the upper jaw of a girl about six years of age, said that she had had one of the central incisors knocked out when eighteen months old, and they would observe that the space had decidedly narrowed. The prevalent idea that such contraction was prevented by the presence of the crypts of the permanent teeth, was contradicted by the case shown, which favoured the older opinion which deprecated the premature extraction of the temporary teeth, as likely to lead to overcrowding of their successors.

Mr. MACLEOD showed casts of an epithelial tumour of the tongue, caused by irritation from a carious upper central incisor. The tumour was malignant, and had grown rapidly, being, when ten days old, $\frac{3}{16}$ ths of an inch in diameter. It was immediately excised by Drs. Joseph Bell and Sidey, and now, ten months afterwards, showed no signs of recurrence.

The PRESIDENT, in closing the meeting, said that as the subject of alveolar abscess had been adjourned for a month, he trusted that members would give it their careful consideration, and bring or send forward all that they knew about the treatment of alveolar abscess, as well as its metastatic exhibition.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

WEDNESDAY, DECEMBER 15TH, 1880.

W. A. N. CATTLIN, F.R.C.S., President, in the Chair.

On maxillary abscess and necrosis in childhood.—Mr. EDMUND OWEN read a paper on this subject, and stated that the question he desired to suggest for discussion was this: Is it right to refuse to extract a carious and aching tooth on account of the acuteness of the periosteal and maxillary inflammation which its presence has excited?" He felt that the knowledge of general surgeons on this point was by no means definite, involving as it did pathological and surgical principles of great importance; and he was anxious to get an opinion from those present, since he held that no surgeon should ever refuse to remove a tooth which was the cause of acute inflammation, for the simple reason that the local disturbance was excessive. He would narrate three cases by way of analogy.

CASE 1 was that of a little boy, in a most miserable condition, with a large bright red or dusky swelling at the end of his thumb. He could neither eat nor sleep on account of inflammation of the bed of the nail. The nail was evidently sound, discoloured, and loose, and embedded in a bleeding groove of vascular granulations. The nail was removed, water-dressings applied, cod-liver oil and iron prescribed, and the boy from that time recovered health and strength. No treatment which did not include the removal of the nail would have been of avail.

CASE 2 was that of a child, with acute periostitis and inflammation of the tibia, with probably some periosteal suppuration, caused by exposure to cold and wet. A bold and free incision was made, which at once relieved the vascular tension, and the patient recovered.

CASE 3 was that of a boy, with the lower part of his face bound up, and his external ear plugged with cotton-wool. On removing the comforter, and with it a decomposing mass of moist linseed meal, one found the cheek red and swollen. He could only slightly separate the jaws; and one noticed, on examining the mouth, that one of the molars was slightly decayed, and that the gum surrounded it with a bright red line. On pressure, a small quantity of pus welled up between the tooth and gum; and, near the angle of the jaw, there was a small opening, from which matter was discharging. The boy had been previously taken to a Dentist, who

refused to extract the tooth "until the inflammation had gone down;" and advised the mother to keep on poulticing the cheek.

Mr. Owen then drew attention to the course the inflammation followed in this last case: the local disturbance having caused paralysis of the vaso-motor nerves, the Haversian arteries became crowded and blocked with the red corpuscles. The colourless corpuscles effected their escape, together with some of the liquor sanguinis, through the thin-walled vessels, and the protoplasmic contents of the lacunæ and canaliculi took on energetic proliferation; at last the intravascular pressure became unrestrainable, and the walls of the vessels giving way, the bone became flooded with sanguineous effusion. Healthy nutrition being impossible, a portion of the jaw perished, freed itself by linear ulceration, and remained as a sequestrum. The less the wounding of the skin, the less the disturbance of the young teeth, as the dead piece of bone was being removed, the better. In his experience necrosis of the superior maxilla in childhood was rare, whilst that of the inferior was not uncommon. In the case of the boy with the acutely inflamed tibia, it was found that the result of those free incisions had been, that it had afforded relief to the vascular and nervous tension, and also a vent to the effused products, and thus saved the compact bony tissue from a fatal flooding; and these same conditions were obtained in the case of the child with the maxillary distress. Prompt extraction would have spared the sufferer much subsequent trouble. In conclusion, Mr. Owen would venture to affirm, that whenever a child was brought for assistance, the more firmly fixed the jaws and the greater the inflammation, the more imperative it was that the irritating tooth and the vascular tension of the adjacent bone be simultaneously removed. The tissues would then settle down in quiet as happily as did the red and swollen fingertip, when the removal of the piece of damaged nail was effected.

The PRESIDENT remarked that it was the erring practice of some to wait until inflammation subsided; but he was a strong advocate for an early removal of the offending cause, as delay often greatly increased human suffering, and was injurious in many instances to the patient in after-life.

Symptoms of blood-poisoning: scurvy (?)—Mr. CATTLIN narrated a case in which all the apparent symptoms of blood-poisoning were present. The water and drainage of the patient's house were good, and he had never been to sea. The breath was foetid, and the gums presented a warty appearance. The upper and lower extremities were studded

with patches, like ecchymosis ; but no symptoms of purpura hæmorrhagica were seen in the mucous membrane of the mouth, or elsewhere. The treatment consisted in a generous diet, with full doses of chlorate of potass and decoction of bark, which was afterwards changed for mineral acids and sulphate of iron and quinine. Under this treatment the patient slowly recovered ; and, in all probability, the case was one of scurvy, brought on by other than the usual causes.—*Brit. Med. Journ.*

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON.

ORDINARY MEETING, DECEMBER 13TH, 1880.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President, in the Chair.

MR. REHMER was elected a member of the Society, and Mr. Edwards was proposed for election.

Casual communications were made by Messrs. Marcus Davis, L.D.S., W. A. Turner, W. Hern, A. Alex. Matthews, J. S. Amoores, and Stanley Cook, L.D.S.

Mr. F. Newland Pedley, L.D.S., read a paper entitled "Syphilis about the Mouth."*

This was followed by a discussion in which Messrs. W. Matthews, S. Truman, M.R.C.S., M. Davis, L.D.S., J. Ackery, M.R.C.S., L.D.S., Hern, and Rees Price took part.

Miscellanea.

APPOINTMENTS.

MR. STORER BENNETT, L.R.C.P. Lond., M.R.C.S. and L.D.S. Eng., has been appointed Assistant Dental Surgeon to the Dental Hospital of London.

MR. P. ROBERTSON, of Aberdeen, has been appointed Dental Surgeon to the Aberdeen Dispensary, vice Dr. W. H. Williamson.

* See p. 49.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

SIR,—I am quite certain that the assertion of Mr. J. J. Musgrave with regard to the wholesale use of amalgam in Lancashire cannot be borne out by facts or statistics, and he would have done well to have given some data before making such a charge against his professional brethren.

I should like to ask him how long he has been refilling teeth with gold? And how many years it is since he began to notice the wholesale employment of amalgam by provincial practitioners?

Knowing that our Liverpool brethren are well able to speak for themselves, I will just say that my experience for the past twenty years is diametrically opposite to that of your correspondent, and I live in a town containing 100,000 inhabitants, and have had fair opportunities of judging of the skill of men in a large number of towns, including Liverpool, Chester, Manchester, Preston, and in some few cities and towns on the Continent.

In no single instance where the patient was willing to pay a proper fee, and the work was done by a non-advertiser, have I seen amalgam used where gold ought to have been employed, particularly with regard to the front teeth.

I am afraid Mr. Musgrave's amalgam stoppings were not inserted with the care necessary for durability, otherwise he would not have been troubled with them falling out.

We can all point to amalgam fillings which have done good service for five, ten, twenty, and for even thirty years, but it is well known that to ensure such results the same care is required in preparing the cavity as would be used in inserting gold, *i. e.* clearing out all carious matter, getting good retaining points, removing weak walls, perfect dryness, &c.

It is the careless way in which amalgam is inserted, and the inferior quality used by quacks, which causes so many failures.

I must also demur to Mr. J. J. Musgrave's statement about "old practitioners and the burring engine." There are practitioners and practitioners; I know men who have been in practice (so called) twenty years and upwards who

ignore tooth-saving entirely, in fact, they are teeth makers. Their practice is summed up in the wholesale use of the extracting forceps and the impression tray. Such men as these (and I am sorry to say there are hundreds of them), of course, ignore the engine and everything else connected with filling teeth.

But talk to the men who have filled teeth, and filled them well, long before the coffer dam, the engine, and other aids were known, about that beautiful piece of mechanism, and they will tell you that it is, without exception, the greatest boon that was ever placed in a Dental surgery.

Not long ago I heard a gentleman of repute say that the inventor ought to have a monument erected to his memory, that the saving in time, labour, and consequently in mental strain, would add some years to our lives, and I am sure every one who has tested the advantages it gives in so many ways, not only in the surgery, but also in the workroom, will readily endorse all that can be said in its favour.

Before I conclude I should be glad, Mr. Editor, if you would allow me to touch upon another subject. I am very sorry to see that some of our young diplomaed brethren seem to have a difficulty in shaking off the leaven of advertising. I will, with your permission cite two cases.

One of the gentlemen holds both the Irish and Glasgow Dental licences, the other holds the licence of one of the above-named colleges.

Now, these two gentlemen, on receiving their diplomas, made a solemn declaration that they would not advertise or do anything contrary to the etiquette of the profession, and yet they are evading that solemn declaration by using the names of their predecessors (in no less than twelve newspapers) whose practices they bought long before they got their diplomas. One of them stoops so low as to hang out a show case.

“Verily these are honorable men,” and I am afraid they are not alone.

Is it not time that our local associations took notice of such cases by asking the colleges to which they belong to remonstrate with those who thus disgrace their diploma, and if this does not suffice to put a stop to the practice, they should at once proceed to strip them of their plumes, and in that way place them in their proper position.

I enclose my card, and beg to subscribe myself

Yours truly,

FAIR PLAY.

[* * We know enough of Mr. Musgrave to make us feel

sure that he would not state that which he did not believe to be true, but at the same time we think that in this instance his assertions are stronger than the actual state of the case would fairly warrant. We know that the practice he speaks of does prevail among a certain class of practitioners, but as to the extent to which it prevails, we believe Mr. Musgrave's experience must be exceptional. It is not an uncommon occurrence for several cases of a disease which we know to be rare, as, for instance, abscess of the antrum, to come under the notice of a practitioner within a short period of time, and in all probability a similar coincidence of cases of amalgam fillings in front teeth has impressed Mr. Musgrave with the idea that the practice is becoming more general than it really is.—ED. 'B. J. D. S.']

To Correspondents.

Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.

ANSWERS TO CORRESPONDENTS.

Mr. PALMER (Southsea).—Report shall appear in next number.

Communications have been received from Messrs. H. B. Mason (Exeter), R. F. H. King (Newark), Rees Price (London), the Hon. Sec. of the Odontological Society, W. P. Robertson (Aberdeen), — Palmer (Southsea), Fairplay, Jas. Macilroy (Glasgow), &c.

BOOKS AND PAPERS RECEIVED.

'Lancet.'
'British Medical Journal.'
'Medical Times and Gazette.'
'Missouri Dental Journal.'
'Dental Jaius.'
'Il Progresso Dental de la Habana.'
'Transactions of the Odonto-Chirurgical Society.'
'Wakefield Herald.' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

No. 313. LONDON, FEBRUARY 1, 1881. Vol. XXIV.

A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter
Session, 1880.

By THOMAS GADDES, L.D.S. Eng.

Lecturer also on the Elements of Histology; Assistant Dental
Surgeon to the National Dental Hospital.

LECTURE II.

Horn.

IN vertebrate animals horn is found in the form of teeth in the lamprey and hag-fish (as I mentioned in my previous lecture) and in the *Ornithorhynchus* or duck-mole; as the representative of teeth in the baleen plates of the whalebone whale, and in the horns of the Ungulata; it is also found as a dense protective covering to the jaws of the amphibious siren or mud-eel, of the tortoise and turtle, the manatee and dugon; and likewise as the bills of birds.

Modifications of horn are to be found in the carapace and armour-plate of the tortoise and turtle, the spines of the porcupine and hedgehog, the quills of birds, and the hoofs, claws, and nails of animals.

The horns of animals may be classified as—(1) The consolidated horn of the rhinoceros; (2) the hollow horns of the genus *Cavicornia*—the ox, sheep, and antelope; also (3) the solid horns or “antlers” of deer. The term “horn,” as applied to the projection from the head of an animal, is restricted to the horny weapon which is supported upon the head, and which may be solid or hollow. In the latter case it is composed of a bony base or “core,” covered by a sheath of true horny tissue. The antlers of deer are not, therefore, true horns.

The substance horn consists chiefly of consolidated albumen and a small portion of phosphate of lime—from about 1 to 3 or 5 per cent. The horn of the rhinoceros is wholly composed of longitudinal fibres of horny matter which are agglutinated together. These fibres are of epidermic growth, and the horn is not fixed to the bone of the skull.

In some of the *Cavicornia*, or hollow-horned animals, the horny sheath is shed annually. This takes place notably in the prong-buck of North America; but it is not usual for the horn case of the *Cavicornia* to be so shed.

Antlers consist of bone only, being solid throughout. They are anchylosed or fixed to the frontal bone, and they are shed and reproduced annually. During the period of their growth the antlers are covered by a vascular, short-haired, velvety skin, continuous with the integument of the head. When growth is completed this skin dries up and peels off, leaving the antler quite bare. Around the base, preparatory to the separation of the vascular integument, a ring of osseous tubercles is developed, forming what is termed the "burr." As the vessels of the skin in the region of the burr decrease in size, the ossification of the burr encroaches upon their diminishing area, until, at length, the antler is deprived of all vascularity and nutrition; and it becomes separated from the outer plate of the living cranial bone by the process of absorption, and is shed.

FIG. 1.

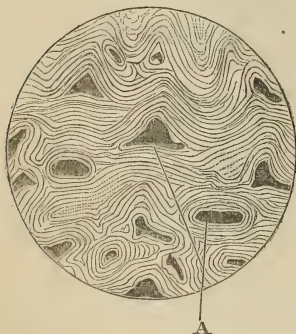


FIG. 2.



FIG. 1. Transverse section of horn of rhinoceros

FIG. 2. Transverse section of horn of Angora goat

A. The axial or medullary cavity of the several fibres. B. The glutinous inter-fibrous substance.

A plate of whalebone consists of a central, coarse, hair-like substance, enclosed within an outer and more compact covering. The central coarse fibres are hollow tubes and contain at their bases vascular developmental papillæ. These fibres are loosely agglutinated together. The tubular fibres of the outer lamina receive from the gum substance around the base of the plate a horny cementing substance. This causes the surface of the plate to be smooth and more brittle than the

inner portion. In use this brittle lamina breaks off, and leaves the ends and margins of the plates to fringe out by the separation of the fibres from one another.

The horny teeth of the *Ornithorhynchus* is, in its central portion, distinctly fibrous with a more dense and horny external covering.

Bone.

Bone is essentially composed of an animal basis impregnated with calcareous salts, and through the substance of the tissue are scattered minute cavities, or Haversian canals, and lacunæ, which latter send out multitudinous ramifications called canaliculi.

The organic and inorganic matters, although intimately incorporated, may be separated from one another by the action of dilute hydrochloric acid, which dissolves the earthy constituents and leaves the animal matter behind; the organic basis thus remaining corresponds in form and size to the original bone. If, on the other hand, the animal matter be destroyed by a red heat, the earthy material will retain the original form of the bone; and, in consequence of having been deprived of its organic matter, it will be found to be so brittle that it may be broken down by very slight pressure. So, then, the organic matter of bone, which constitutes about one third, gives tenacity and elasticity, and the inorganic matter, which constitutes about two thirds, gives hardness and rigidity to the osseous tissue. The formation of the organic matter is an operation quite distinct from its impregnation with earthy material, and the former process may occur without the latter. The animal basis may be formed, but if not impregnated with earthy salts it will be destitute of those physical properties for which osseous tissue is required—it will be so soft that it will neither support the weight of the body, nor constitute a firm framework for the attachment of muscles, a condition which exists in rickets.

In some situations bone tissue is arranged to form an open texture resembling lattice work, and exhibiting spaces or cancelli, which communicate freely with one another. This form is called *cancellated* or spongy bone. These spaces are occupied with a little fatty matter, traces of connective tissue, cells, and vessels, and are lined with a delicate membrane—the medullary membrane. In birds, with some exceptions, the spaces in the bones contain air. The bony walls of these spaces are composed of thin plates or spiculæ of osseous tissue, in which are lacunæ and canaliculi. If the bony walls of the cancelli become very much thickened, so as only to leave room for one vessel in the centre, we have

an approach to the other kind of bone tissue, which is called *compact* tissue. This, however, in its fully formed state, contrasts remarkably in character with the spongy cancellated texture. The compact tissue is so firm and dense that you would not suppose it was traversed by numerous vessels which run in channels or Haversian canals, and which are connected here and there by transverse branches, so that if the whole of the bony matters were removed from the compact tissue we should have left a web or net work of capillary vessels having elongated or longitudinal meshes. The difference in structure between the compact and cancellated forms of bone tissue depends, therefore, merely upon the different amount of solid matter, and the size and number of the spaces in each—the cavities being small in the compact tissue, and the solid matter between them abundant; whilst in the cancellated tissue the spaces are large, and the solid matter in smaller quantity. The compact tissue is placed upon the exterior of a bone, and the cancellated tissue is almost always internal—just the situations where we saw (Lecture 1) the laws of morphological and physiological development indicate.

I shall now describe the microscopic structure of the compact bony tissue.

The Haversian canals contain blood-vessels, and the largest of them also contain marrow. The blood-vessels are supported by processes from the medullary and periosteal membranes, which enter the minute canals along with the vessels, and through the medium of these processes do the medullary membrane and the periosteum become continuous with one another. Besides these processes the Haversian canals are lined with osteoblasts, and the function of these osteoblasts we shall see by-and-bye. The canals are from $\frac{1}{1000}$ th to $\frac{1}{200}$ th of an inch in diameter. Some are much smaller than this, but they are rarely to be found. The widest Haversian canals are, in long bones, nearest the medullary cavity, and towards the circumference of the bone they are smaller.

In longitudinal section they may be seen to run for the most part parallel to the surface, to be quite short, and to be somewhat oblique and crooked at their ends, where they freely open into one another. Arteries and veins usually occupy separate canals, and the veins, which are larger, often present, at irregular intervals, small pouch-like dilations.

In transverse section, surrounding the Haversian canals are a series of concentric lamellæ, one within the other. There are lamellæ also immediately beneath the periosteum and the medullary membrane, which extend uninterruptedly

for a great length, or entirely round the bone. These are called respectively the Haversian, the periosteal, and the medullary lamellæ. The latter two, or circumferential, lamellæ are only conspicuous in bones of full growth. Between the lamellæ are numerous little cavities seen only in dried bone, which are elongated or flattened, and they extend conformably with the direction of the lamellæ. These minute spaces are named lacunæ. The distance from each lacuna to the neighbouring lacunæ is seldom more than $\frac{1}{1300}$ th of an inch. Moreover, each lacuna is connected with its neighbours by numerous minute channels or canaliculi, which pursue a somewhat wavy course. The canaliculi are usually not separated from one another by a greater distance than $\frac{1}{3000}$ th of an inch.

In the living condition a lacuna contains the remnant of the formative osteoblast, and processes from this occupy the canaliculi.

Other structures which are to be seen with the aid of the microscope are the "perforating fibres of Sharpey." They are to be found by pulling asunder the sections of lamellæ of a decalcified bone. They are also very numerous in the cementum of teeth. Sharpey's fibres seemed to have no physiological significance; they may be regarded as merely a modification of the mechanical structure of the tissue. These fibres probably consist of bundles of calcified connective tissue.

The formation of osseous tissue takes place in the same way in the cancellated texture and in the compact tissue.

There are two modes of ossification, known as intra-membranous and intra-cartilaginous. Most of the bones of the skull and face, and the cementum of teeth are examples of the former, while the long bones are developed in cartilage.

Periosteum covers all bone, except at the articular surfaces where the sub-articular cartilage is in contact with the bone. Periosteum consists of fibrous tissue, blood-vessels, and nerves. Upon the surface the fibrous tissue is somewhat dense, whereas, deeply, it is open and reticulate, and bundles of fibres run into the bone. The cells in the closer part of the structure are similar to connective-tissue corpuscles, but in the inner reticulate meshes they are large and numerous, and form the osteoblasts, which, for the most part, cover the surface of the bone. The blood-vessels ramify in the periosteum and then enter the bone, carrying with them a process of the periosteum into the Haversian canals. In this way it may be regarded as the nutrient membrane, and, as recently mentioned, the source of the periosteal lamellæ and of Sharpey's fibres.

Dental Surgery and Medicine.

CLEFT AND PERFORATE PALATE.

A paper read before the Students' Society of the Dental Hospital of London, January 17th, 1881.

By W. A. TURNER, Esq.

MR. PRESIDENT AND GENTLEMEN.—When asked to read a paper before this Society, I must confess that it was not without some difficulty I decided upon a subject, for it seemed impossible to find one of any practical value, which had not been treated of in some previous paper.

That which I have chosen seems, however, so far to have been omitted, and as it is a deficiency which frequently falls under our notice, and which we are called upon to make good, a few moments spent in considering the circumstances which may give rise to them, and the treatment adopted to make good these defects, may not be illspent.

I propose first to consider the deformity as a result of imperfect development, or “congenital cleft,” as it is usually termed. We get every variety of the extent of defect; from a mere bifurcation of the uvula, to a complete chasm extending through both hard and soft palates, often with great displacement of the incisive bones, and associated with double or single fissure in the lip, the nasal septum often being greatly bent to one side. In some cases the intermaxillary bones have been said to be absent altogether, but I believe these examples are rare. It is a very exceptional thing to find the cleft extending through the median line in the front part, between the premaxillary bones. The course of what in foetal life is the suture between the incisive bone and true maxilla is generally followed, and the cleft in the lip is consequently not median; it is therefore not an exact representation of the condition found in the hare, where it is always single and central.

Although the anatomy of the incisive or intermaxillary bones has been described in outline by some of the ancient anatomists, Galen, Nasmyth, and others, yet little importance seems to have been attached to them by these authors. Goethe, in 1780, speaks a little more on the subject, but even so recently as the early part of the late Sir William Fergusson's time, the usual practice was to snip them off when they were

so malplaced as to interfere with the closure of the fissures in the lips, and with them, of course, went the incisor teeth. Since then, however, their importance has been more fully appreciated, and they are not sacrificed with the same freedom, they are often reduced to a tolerably good position in cases where not too rigidly fixed, by means of pressure brought to bear on them by the use of Hainsby's splint.

But even with the best intentions, it is not always possible to preserve the incisive bones; thus in a case which was lately treated at Middlesex Hospital, these were represented by what appeared to be a nodular pedunculated fibrous outgrowth, attached to the outer extremity of the nasal septum, with a fissure on either side through the lip. It was found impossible to reduce the mass to anything like its normal position so as to close the lip over it, there was therefore nothing left but to remove it. This was accordingly done by Mr. Hulke, who kindly gave me the mass for the purpose of making a section, which, as you can see, presents a splendid opportunity for examining the condition of the parts under these circumstances. The child was four months old, the central incisors are well seen in the section, calcified through nearly the whole of their crowns, although ossification in those portions which represent the incisive bones and forming a casing round the teeth, has scarcely gone far enough to form true bone, being easily cut through by the knife.

According to Salter, a perforation may exist in the hard palate alone, the fore-and-aft parts being perfect, as a result of congenital defect. When the alveolar portion only is cleft, as sometimes happens, it is seldom we find any deficiency in the lip; on the other hand, the lip is often defective when there is no sign of imperfection in the palate.

To understand how these conditions are arrived at, it is necessary we should be acquainted with the mode of development, and the relation of these several parts with one another at a very early stage of their formation, when the first traces of ossification appear and the opportunity is afforded of recognising the elements of which they are composed. At this time, which in the human subject is about the middle of the second month of foetal life, we find the nasal and oral cavities undivided, the lateral processes being but very rudimentary, and the four bony centres which by their coalescence are ultimately to form the roof of the mouth are widely separate. As development goes on, these gradually increase in size, until, under normal circumstances, the incisor bones on either side become united with the true maxilla of that side, thus [forming one bone, which is con-

nected to that of the opposite side by fibrous tissue, the whole being completed by the time of birth. But in these cases where we find the process to have been defective in the front of the mouth, we see it is failure of bony union, whereas in the palate processes of the true maxillæ it is of course failure in the median line, so we often get a perfect Y-shaped cleft. It is easy to see why the two premaxillaries do not fail to become connected to one another, as their two centres are so close; but the distance between them and the rest of the palate is very considerable, and requires a much longer period to perfect it, and the same thing applies with greater force to the velum.

Keeping, then, the mode of the development of these parts in view, we can easily understand how anything which may tend to retard or in any way disturb the parts during these early stages would bring about the conditions we are called upon to remedy. But why these particular parts are so affected, whilst other structures of the same body are perfectly and normally developed, it is not easy to see, nor can we do more than speculate upon the causes which produce it. There are many defects which are peculiar alike to parent and child, and of which we can say without the slightest doubt that they are hereditary, but we cannot do so with regard to congenital cleft palate, for we constantly find that parents so affected have children who show not the slightest sign of the deformity, and again, though both parents may be perfectly free and no trace of it in the family before, yet one or two of the children of these parents may present the defect in its most extreme form. A case of this latter kind occurred in a family, one of which attended the hospital just before Christmas, and as the case was entrusted to me I was able to inquire fully into his family history which showed the following interesting facts:

R. C—, aged 22, a miner, of Grosmont, Yorkshire, a hearty-looking and well-built young man, who had never shown the slightest signs of illness. Father and mother living, quite healthy; two sisters, both living. Not the slightest mark of any deformity in either parent, but all three children are affected; one sister had harelip, no cleft in palate, the other sister presented the same conditions as patient, viz. single harelip, and cleft extending from about the middle of the hard palate backwards through the soft. The fissures in the lips had, of course, been closed when they were infants. To the treatment of these cases I shall again refer. The deficiency in the palate was in each case restored by means of an obturator.

Some writers seem to think that civilisation may tend to

produce these conditions, yet one fails to see in what way it can act. We all know well its influence on the development of the dental organs and those portions of the jaw subservient to them, and also upon the features in general, and at first sight it would seem reasonable to suppose that it may have some part in producing imperfect palates as well. But the changes wrought in the shape, size, &c., of the teeth and associated parts, are produced gradually by hereditary transmission, and are materially influenced by "sexual selection," &c., factors which seem to play no part in the causation of congenital cleft palate.

It would seem, however, that certain hygienic conditions may tend to produce these defects of the palate. Thus, it is interesting to find that a considerable proportion of the young lions born in the Zoological Gardens, Regent's Park, have defective palates, and consequently die young, but that this does not occur with the young of those confined in other places. Whether it ever occurs in the more savage races of mankind I cannot say, but we find records of various devices designed to remedy the evils arising from this defect amongst the most ancient surgical literature of civilised nations. It is not, however, until quite recently that any attempts seem to have been made to restore the deformity by surgical operation.

The first cases are reported to have been performed by Roux, a French surgeon, in 1819. He is said to have performed it on a medical student, and after that to have treated successfully a number of cases; but I believe his operations were confined to the soft palate, the hard, when deficient, being made good by an obturator. The operation introduced by him does not, however, seem to have been by any means a certain one, the tension of the velum muscles often breaking the stitches before union of the edges of the fissure had been effected. To remove this cause of failure, transverse incisions were made on either side of the cleft by Liston and others, but it was not until the introduction of myotomy on a rational basis, by the late Sir William Fergusson, that this difficulty was surmounted. Since that time the operation has been extensively practised, and is generally a surgical success, though the result, as regards improvement of the patient's articulation, is not always what might have been expected.

In deciding upon this operation there are two points which may serve to help the prognosis. First, the age of the patient to be operated on, and, secondly, his general condition.

With reference to the age best suited many differences of opinion exist; thus, in some works on general surgery, you

see it stated that it should not be undertaken until the patient is old enough to understand the necessity of keeping still after the operation, and so preventing any undue strain on the sutures. Others, again, advocate its performance as early as possible, and amongst these may be mentioned Fergusson himself. Of course it ought not to be undertaken during the time of dentition.

The difficulties arising with the increase of age are numerous, for by the law of "adaptive modification," of which we read so much, nature makes good her deficiency in part by an increase in the size of the tongue, which the patient learns to use to fill up the vacancy in the roof of the mouth, and so accustomed does he get after a time to use it for this purpose, and so large does this organ become, that it takes a considerable time, after the gap is closed by other means, before it becomes reduced to its natural size, and before the patient gets out of the habit he has acquired of using it as an obturator. Then, again, having learned to make himself understood in speaking under these conditions, it is not an easy matter for him to adapt his mode of articulation to the altered circumstances.

Surgical closure of the hard palate, when defective, was first practised in America by Warren and Boston, and, subsequently, in this country by Avery and Pollock, and in the present day, when both palates are affected, both are often closed at one operation. To effect this an incision is made on either side of the cleft in the hard palate close to the alveolar ridge, through gum, tissue, and bone, into the nasal fossa; then, by means of a sharp chisel, forced through by hard pressure, the portions of bone so separated are wedged towards one another, leaving the soft parts still attached. The edges of both hard and soft palates are then pared, section of the muscles effected to relieve tension, and the whole brought together by fish-gut sutures. The patient is then put to bed, every caution taken to prevent exertion of the parts, and a liquid but nutritious diet prescribed; and, if all goes on well, union is generally completed in less than a fortnight.

But although this mode of closing the hard palate is now extensively practised, it is not always successful, and in some cases not even possible; indeed, there are still some who altogether disbelieve in it, and assert that the restoration of the parts by means of an artificial obturator is far more beneficial to the patient. Without any pretence to argument in favour of either view, we will now pass on to consider how this artificial restoration is best accomplished.

In treating these cases mechanically it is obvious that the

first thing to be done is to secure a good impression of the parts. To do this much care is required, especially in taking the velum, it being so freely mobile, yielding to the slightest pressure; yet, to get a correct model a plaster impression is absolutely necessary, a special tray being indispensable for this purpose, and in order to obtain this we have first to get with the nearest fitting tray at hand, and either of the modelling compositions at our command, as near as these will allow, a model upon which we can fit our special tray. This done, the next thing is to well roughen the tray inside, so as to hold the plaster, that when set and an attempt is made to remove it from the mouth the plaster and tray shall not part company. An advantage will be found in using a little roll of softened pipe-clay along the posterior margin of the tray to prevent the plaster from running over whilst pressing it home, and the clay being so soft does not interfere in pressing it well up into place. To prevent the plaster from passing too far through the cleft it will be found useful to place a piece of well-wetted linen rag just over the aperture. It is of great importance that the patient be specially directed to breathe freely through the nose to ensure perfect tranquility of the velum muscles, and to assist in carrying this out the head should be thrown slightly forwards.

A good model having been secured the next point is to decide as to the material best suited for the requirements of the case under treatment. Where the deficiency is principally confined to the hard palate, a thin metal plate answers admirably, but where the cleft is extensive I think vulcanite is to be preferred, a piece of velum rubber being used to answer the purpose of a uvula; in many cases this accessory portion can be dispensed with, the hard rubber being carried well back. In two cases I have lately treated, this latter plan was adopted, no velum being used, but the hard rubber was carried quite as far back as the posterior margin of the palate bones, and then turned slightly downwards, thus avoiding laceration of the fauces by the edges.

The first of these cases, which was inserted about three months since, has done remarkably well, the patient's articulation being now much improved; the other case, inserted just before Christmas, was made on the same principle, but as this patient lives in Yorkshire I am not able to give him as much attention as I should like. He has, however, promised to come to London again in a few weeks to let me see how he is getting on, and you will then be able to judge for yourselves what improvement has taken place.

Of course the success of these cases in great part depends upon the patient's own perseverance, and the improvement

is necessarily, from reasons I have before stated, a gradual one, though a marked difference in the distinctness of the articulation could be made out even a few days after the insertion of the plates. In neither of these cases did any inconvenience arise from the hard rubber being carried so far back, though it has been supposed by some that ulceration might occur, the only complaint being that, at first the posterior margin of the plate, which was bent downwards, got somewhat in the way of the tongue during deglutition, but this inconvenience soon passed off as the parts became adapted and the patient used to the piece. By mentioning these cases which have succeeded so well with hard rubber only, I would not be thought to depreciate the use of the velum in some cases, and if it were not for the fact of its decomposing so quickly, I would advocate its use in every case where the soft palate is implicated. But the fact of its requiring to be so frequently renewed is a matter of great object to the patient, as every time anything has to be done to the plate the unfortunate wearer is put to the inconvenience of doing without it, at least for some hours, during which time they are placed in far worse condition than a patient who has had the misfortune to break a denture, for the latter can manage to speak, but the former has to remain comparatively dumb until his artificial palate is again restored. Then, again, it is not every patient who can afford the expense of constantly attending to have this renewed; so if it is possible to do without it I think it is better, and I know in this conclusion I am not alone. With the use of Dr. Kingsley's obturators I have had no experience, and I believe they are very little used in this country, not because of their inefficiency, but probably on account of a metal mould being required for every case unless a large stock be kept; and then, again, being made of the velum rubber, they are soon out of order. But in this case each patient may be supplied with several, as they are so readily adapted to the mouth. For a full description of these I must refer you to the Odontological Society's 'Transactions' for 1874, page 87, where the details of their manufacture are fully explained.

My remarks so far have been confined to the treatment of the congenital defects, and I have dwelt upon this part of the subject because, in a paper of this description, it is impossible to do more than bring forward an outline of the principal facts for discussion, and as a full description of several cases of acquired cleft are given, together with the mode of treatment adopted in each by Mr. Salter, in his 'Dental Surgery and Pathology,' I cannot do better than

refer you to the accounts there given. Few of these cases of acquired defect, from whatever cause, it may be the result of specific disease, accident, or surgical operation, admit of surgical interference; but some mechanical contrivance must be used. But of whatever form they are constructed the principal evil to guard against is pressure of the obturator on the margins of the cleft or perforation; for if any portion of the plate does so press absorption or ulceration is bound to occur. Nor in these cases should we allow any portion of the obturator to pass through the perforation, as in all these cases of acquired defect we may reasonably hope for a certain amount of repair to take place around the margins of the perforation after the exciting cause of the defect has been removed.

The restoration of articulation in these cases is almost immediately attendant on the deficiency being made good.

In conclusion, I would express the hope that as I have necessarily omitted many points of interest, you may in the discussion bring forward the experience you may each have gained by the opportunities afforded you in these matters during your hospital life, and if we can thus add something to one another's knowledge, the object of my paper will then be attained.

Mechanical Dentistry.

WHY CELLULOID DOES NOT SUCCEED.

By E. M. FLAGG, D.D.S., New York.

Read before the Connecticut Valley Dental Society.

It has become to-day a very important question for our profession to decide, whether celluloid is to be a failure or a success as a Dental plate. Of late there has existed a strong disposition on the part of many members of the profession to evade the subject of mechanical Dentistry, or ignore it entirely. Its discussion has been more or less excluded from Dental associations, and in some cases motions have been made to deny it a position altogether as a branch of Dentistry. One might almost suppose, to hear certain gentlemen speak of mechanical Dentistry in the manner they do, that they had so far outgrown it, and it had become a matter so simple and all its requirements had been so completely fulfilled, that mental

energy bestowed in that direction was a mere waste of brain-power. I claim the contrary. Its requirements have not been fulfilled. An artificial denture is supposed to represent the natural organs in such a manner that its expression, character, and effect will harmonise with the individual for whom it is made. In other words, that it will be an exact portrait of what the patient's teeth would have been had he preserved them in health to the time when the artificial substitute was inserted. There are many gentlemen in the profession who are wearing artificial dentures, and judged by the test just named there is not one denture in ten but that could be picked to pieces by perfectly legitimate criticism. So much for the requirements of mechanical Dentistry having been fulfilled. Remarks in this direction might be continued indefinitely.

The necessity for a higher standard of artistic culture in this direction cannot be ignored. It is useless to prate about the number of teeth that are being saved annually. That does not help those who have lost their teeth one particle, and we all know it is no uncommon remark on the part of patients, that it is impossible to make a set of artificial teeth look natural. So far as rubber is concerned this remark is true. You cannot get individuality from a row of moulded porcelain blocks. As well might you expect an artist to make a portrait by selecting from a quantity of manufactured noses, eyes, ears, &c., and joining them together on a canvas. To obtain individuality in work the artist must not be restricted in his ability to arrange any portion of the material which he uses in any manner that he may desire. He may take a single plain tooth and carve and polish it to any form he desires, provided the material be sufficient; but a moulded block, as it comes from the manufacturer, cannot be made by any amount of artistic manipulation to alter its rigid, lifeless expression. So far is this assertion true, that I have had agents of Dental depôts tell me that they could always detect whether the wares exhibited in the mouths of those they met while travelling were from the moulds manufactured by the house they represented or not. What a comment to be made in a country where our profession is supposed by some to have reached the highest plane of development!

Celluloid has not this defect named in connection with rubber. Single, plain teeth can be used, and the artist is not restricted in giving the highest expression and character to his work. If he appreciates the requirements of his case there is nothing to prevent him from fulfilling them if he uses celluloid; so I say again, that there is no question so important for the profession to decide as whether celluloid is

to be a success or a failure. The defects found to accompany the use of celluloid are as follows: (1) A warping of material either in the process of moulding the plate or soon after the plate is inserted. (2) Discoloration of the material around the necks of the teeth, soon to be followed by discoloration of the entire plate and consequent softening of the plate. (3) After sufficient softening, the plate itself often breaks, which breakage is assisted by the disposition of the material to warp, and the teeth are inclined to drop off by the celluloid shrinking from the pins and the softening of the material around the pins.

The plate at first intrudes itself upon the notice of the patient by a constant taste of camphor in the mouth, and to some patients this effect is very dispiriting, but as the plate becomes discoloured and softened, the taste and smell of the celluloid is disgusting in the extreme, and the patient is inclined to condemn a material whose sole defect may lie in the manner in which it is worked. If we go on working it in the manner which we have been taught, celluloid will be a failure, because there has been no apparatus that will fulfil the conditions required for the production of a perfect plate.

These conditions are as follows: (1) No steam, oil, or other foreign substance must be allowed to come in contact with the material while it is plastic, or it will discolour. (2) During the process of pressing the celluloid, one portion of the blank must not be one degree colder than another portion, or it will warp. (3) The material must have its form changed at a heat much higher than is now used, otherwise it will still have a tendency to return to its original position, or, in other words, warp. This superior heat must be obtained in an apparatus that is air-tight, for if the superheated material can obtain oxygen either in the form of vapour or a current of air, it will surely burn.

Let us now briefly consider the various apparatus that have been used for working celluloid and we shall see how unfit they are for producing a perfect plate, or if capable of producing good results, we shall see how the labour required will render them impracticable to the mass of the profession.

First, we have the glycerine machine, that produced a plate in which the celluloid had the benefit of a good soaking in this greasy, penetrating compound while the celluloid was in a softened condition, and the pins of the teeth had the additional advantage of being well greased, which left them in a condition admirably adapted to facilitate their future exit from the plate.

In the second place we have the steam machine, with no

thermometer, and a valve in the place of it. Our experience with this instrument was that it produced a plate whose texture was not in any way improved by a volume of overheated steam rushing through it while in a plastic condition, and the contact between tooth and plate was anything but perfect. The plaster cast was often softened to such a degree by the hot steam and water that the fit of the plate would be destroyed. The investment would often soften to such an extent that the articulation would be badly impaired. The plunger, running in a steamed-packed cylinder, always left us doubtful as to whether the plate or the rubber of the cylinder was making resistance to our pressure, while such a thing as getting a fine dense texture to our celluloid was entirely out of the question. In fact, to enumerate all the defects of this instrument (so much vaunted by the Celluloid Company) would require more space than can be allowed to this entire article.

Another machine had a limited sale, and was known as the Heintzmann dry oven. It purported to press celluloid at a dry heat, and was furnished with a large door, the opening of which served the double purpose of allowing the flask to be seen and the cold air at the same time to enter the flask. It also enabled the operator to get one part of his flask very hot while the other remained comparatively cold, and it was with the greatest ease that he could burn one corner of his plate while the other remained so cold that the material would hardly flow. These bad results would be in part due to the misguiding influence of a thermometer that was placed on the top of the machine, which could only register the heat of the iron walls of the heater, and as the burner heated the iron walls and the flask was the last thing to receive heat, the thermometer was therefore of little use.

The fourth machine is known as the "Best," and although far better results could be obtained with this instrument than any of the others we have mentioned, there is probably no other machine that produces so many failures. "Hot, moist air" was not as bad as superheated steam for the texture of a celluloid plate; but any moisture is bad coming in contact with celluloid in a plastic state. It prevents elimination of whatever is volatile in the material, so that the material does not attain a good degree of hardness, and cuts under the instrument in a manner known as cheesy. Perfect dryness of the flask is eminently desirable, and this cannot be satisfactorily obtained where there is any unevenness in the application of heat to the flask. Unless the heat is perfectly uniform the plaster is liable to powder and to crack, and becomes unfit for an investment.

In the Best machine, by constant watching and shifting the upper for the lower half of the flask continually, so that they would be alternately presented to the bottom of the oven, we might obtain a comparatively even heat. The directions said, "Wet the finger and touch the heated flask, as a laundress does a flat iron, in order to see to what extent it would 'fizz.'" This primitive operation was supposed to serve the place of a thermometer and indicated the heat of the flask, but I have to record it as my experience that it was a very unreliable "thermometer," and I doubt whether if all evidence could be collected upon the subject of "finger fizzing" (or flask fizzing) it would lead to results sufficiently certain to warrant its use in the working of a substance so sensitive as celluloid is.

So much for the apparatus heretofore used; and if celluloid were dependent for its success upon the machines mentioned we should not have long to wait before it would be generally given up as a failure. A few men of the profession who could give their labour to celluloid as a specialty would have more or less success, but the mass of the profession in the smaller cities, who have to divide their time between both branches of our specialty, would not and could not afford to give their attention to a material whose best results were attended with uncertainty. For the most part they do not get large fees for work, and failure is with them a very serious consideration. They cannot afford to calculate upon making plates over again. The manufacturers cannot afford to bestow the same expense in the perfection of the "blanks" if their sale is to be narrowed down to a few specialists. Celluloid, as a material, has every advantage that can be hoped for. "Rubber" is known to be unfit for contact with the mucous membrane of the mouth, and "rubber poisoning" is familiar to nearly every Dentist. Those who use rubber are victims to a restrictive monopoly. And yet there are probably fifty rubber plates made to one celluloid.

I have said that celluloid, as a material, is the best that can be used in the mouth, and we will now describe an experiment to prove the truth of the assertion. Take a celluloid blank from the Dental depôt, say No. 6½ full upper (this number covers as much surface as any), pour plaster inside of it, making a model for the blank to rest upon. The blank will fit the plaster model, with the exception of a slight difference to be expected from the "setting" of the plaster. Now, if we keep the blank and the plaster model for six months or a year there will be no change in the fit. The Celluloid Company have not boiled the blank in grease or glycerine. They have not subjected it to a

current of superheated steam, nor have they cooked it in an oven that would heat one part of it more than another. We may take the same blank and put it to soak in the promiscuous contents of our saliva pump, and there it may soak for six months at a temperature of 100° F. with no change to either colour or form. We will now take another blank and mould it in the steam heater upon a plaster cast. We will not put any teeth on it. As our plaster cast will be probably destroyed in the process of pressing, we shall have to make another one to preserve for the purpose of our experiment. The first effect we note is that our steam-moulded plate will smell strongly of camphor, and cut under the instrument in somewhat the manner of hard cheese. In about three days the smell of camphor will have left the piece, and while we congratulate ourselves on that effect there will be another effect upon which we cannot congratulate ourselves, and that is, that the steam-moulded piece of celluloid will not fit the cast at all. So much for the effect of steam upon the fit. If we now take our steam-moulded piece of celluloid and put it to soak in the contents of the saliva pump, we shall find that in one week it will begin to discolour, and in a month will present an appearance as disagreeable as bowspring rubber.—*Dental Miscellany*.

Hospital Reports and Case-Book.

TWO CASES OF INTEREST TO THE DENTAL SURGEON.

By W. V. DITCHAM, L.D.S., D.D.S.

Case of impacted wisdom tooth.—Mr. J.^r P.—, aged 51, came to me, August 20th, 1880, with the following history:

About two weeks previously patient began to suffer pain at the angle of the lower jaw on the right side; this was continuous, and gradually increased to such an extent as to unfit him for his duties. Had been treated by medical adviser, who had ordered his mouth to be gargled three times daily with the following:

℞ T. Iodini Compositæ, gtt. xj;
Acidi Carbolici, gtt. vj;
Glycerinæ, ℥j;
Aquæ, ℥viij. M.

As he got worse instead of better, the doctor suggested that

his teeth should be examined by a Dentist, and he was referred to one of good standing. This gentleman diagnosed the affection as tonsillitis, which, I presume, he did not know the meaning of. The medical adviser differing entirely, he was sent to me. When I saw the patient his condition was as follows:—Very feverish, breath very foetid, tongue very furred; pulse full; great difficulty in opening mouth.

After hearing his history I at once suspected the cause to be impacted wisdom; and upon passing a probe through the gum I found such to be the case. I made an incision through to the gum on each side of the tooth, and then, with the cutting forceps, I cut through the bone to the tooth each side, and by the use of an elevator (right angled) the offender was easily removed.

Case of deafness caused by caries.—October 29th, 1880.—Mrs. B—, aged 31, consulted me for artificial teeth. On examining the mouth, my attention was drawn to the first right superior molar as being very much decayed and periostitis existing. I advised its immediate removal, which was, however, refused, although patient suffered at times intensely from it. (I may add that her reluctance was caused by the fact that the corresponding tooth on the opposite side had been broken by a Dentist on attempting its removal.) She at the same time informed me that for two months she had been stone deaf in the right ear. After dismissing the patient, having taken the impressions, I was determined to remove the tooth at the next visit, feeling sure it had something to do with the deafness complained of.

On the 5th November patient returned, and after a deal of persuasion the gas was administered and the tooth removed, together with the alveolar abscess. Three days afterwards patient could hear at times with the right ear, and when I saw her the following week she assured me that her deafness was completely cured.

REPORT OF CASES TREATED AT THE DENTAL DEPARTMENT OF THE ROYAL PORTSMOUTH, PORTSEA, AND GOSPORT HOSPITAL.

FOR THE YEAR ENDING 1880.

Extractions	1190
Chloroform Cases	5
Advice Cases	99
Stoppings	36
Irregularities of the Teeth treated mechanically	9
One case of fracture of the lower jaw (child)	

Total..... 1339

JOHN EVAN PALMER, L.D.S.R.C.S.I.,

Dental Surgeon.

British Journal of Dental Science.

LONDON, FEBRUARY 1, 1881.

THE report of the Annual General Meeting of the Odontological Society reached us so late last month that we were unable to make any comment on the very important alteration of one of its rules, which was then agreed to unanimously and almost without discussion. Hitherto, as most of our readers are no doubt aware, the non-resident or country members, although they form a majority among the members, have had to be content with a very subsidiary position in the executive. The Council is composed of nine town members and six country; of the six Vice-Presidents three are selected from each class, but we cannot call to mind an occasion on which a country Vice-President has exercised the functions of his office; whilst it was strictly enjoined by the rules that only a resident member was eligible for the office of President. Under these circumstances, outnumbered in the Council, and having no prospect of anything substantial beyond, it is not to be wondered at that the country members took comparatively little interest in the management of the Society, and that this was left almost entirely in the hands of a small body of London practitioners.

So long as the Odontological Society of Great Britain had no rival, this state of things did not so much matter. Country members might grumble a little and point to the claims of some of the eminent men amongst their number; there were always the stock arguments that the business of the Society could not possibly be carried on if country members were admitted to a larger share of the management. We know how much has been said on this subject, with probably more show of reason, in the case of the Council of the Royal College of Surgeons, and how experience has disproved the objections. But the formation of the British Dental Association, and the rapid growth of its branches, altered the state

of affairs. Unless the interest of the country members in the old Society could be strengthened, there was a strong probability that they would be seduced from their allegiance by the evident advantages of the new local associations, and thus the former would be reduced to what we fear it has been too much *de facto*—the Odontological Society of London only. The new rule may certainly be expected to do something to revive this interest, since it empowers the Council to recommend for election a non-resident member as President, “not oftener than once in three years.”

It is no secret that the first of these country presidents is likely to be a gentleman whose claims to the honour have been repeatedly urged in this Journal. In December, 1879, we wrote as follows :

“Can our readers doubt for a moment to whom we allude, as the one whose claims to the Presidential Chair have been too long ignored? Is there any one in the profession to whom the following words of Mr. Turner can be more fitly applied than to Samuel Lee Rymer?”

“‘Under the constant pressure of an ever lengthening series of circumstances, each requiring immediate attention, the events of a remote past are liable to be driven out of our recollection, and the claims of those to whom we owe debts of gratitude are unintentionally, but none the less fatally, forgotten.’”

“But we forget our readers are mostly young and cannot so well recall his name as we can, as that of one who did so much in years gone by, and has done so much since for the profession.

“To state his claims briefly, then, we would say that Mr. Rymer was the first, publicly and openly, in September, 1856, to call attention to the necessity for some organisation among Dentists, and his public action had the effect of bringing to light not only his own scheme of a College for Dentists, but the existence of the Odontological Society which, but for this antagonism, would probably have smouldered on for years afterwards; and, although the broad basis of “Dental Reform,” irrespective of colleges or societies, was not then thought of, there is no question that the public action of Mr.

Rymer and his colleague, Mr. Alfred Hill, did more to prepare the minds of Dentists for the subsequent establishment of the permissive educational scheme of Mr. Tomes, and the more recent introduction and success of the compulsory scheme of "Dental Reform," than anything that had been previously said or done.

* * * * *

"We say that the name of such a man would do honour to the list of Presidents of the Odontological Society, and that in honouring him they will honour themselves; and we trust that prompt action will be taken by the President and Council to ensure as soon as possible Mr. Samuel Lee Rymer's election."

What the claims of justice appeared unable to effect, the force of circumstances is bringing to pass. But so long as the end is secured, we can afford, in this instance at least, to disregard the means, and must congratulate the Odontological Society on the somewhat tardy advance which it has made.

Literary Notices and Selections.

TREATMENT OF TEETH WITH DEAD PULPS AND ALVEOLAR ABSCESS.

By Dr. C. R. E. KOCH, of Chicago.

Abstract of a paper read before the Illinois State Dental Society.

If there are those among us who doubt that our profession has progressed in knowledge within the last twenty or twenty-five years let them pause and compare the treatment of the cases referred to in the title of this paper now with that generally in vogue at that time. Then, an essay upon this theme might have been written very briefly in two words, *extract them*, and would have met with the endorsement of the large majority of the profession.

If, now, these cases are restored to usefulness, a great benefit is conferred upon humanity, and to do this with the least amount of suffering to the patient should be the aim of conservative practice.

It is true that failures in these cases sometimes occur to perplex and annoy us. Now and then a case may not progress just as we may wish or expect. In spite of precautions taken, our patient may call sometimes with an eye all but closed by a very much enlarged and rubicund cheek, and accompanied by a temper akin to that of a Sioux on the war path, exhibited in accents neither mild nor polite. Let us not be discouraged by such cases, but be all the more earnest in determining to know just what has caused this result and be careful to avoid a *faux pas* of the same nature, if it may seem that the untoward condition was the result of mistake or neglect of ours. Sometimes such a result may occur, however, from causes far beyond our reach or recognition.

We may say it as a maxim, that all teeth with dead pulps in them, irrespective of the cause which destroyed their vitality, and regardless of whether they have produced annoyance, pain, periostitis, or abscess, and whether decayed or not, should be treated; always supposing that we have unmistakable evidence that the pulps are dead.

We might lay down the following general rules for the treatment of these cases:

First, cleanse the tooth and free the gum around it *from all irritating substances*.

Second, *open the pulp chamber, allowing any gases that may arise from decomposition to escape, and cleanse it and the root canals as thoroughly as possible.*

The opening into the pulp chamber should always be made at a point where it will least weaken the tooth structure, that will give the most direct and free access for the introduction of the broach, medicaments and light, and that shall, when again filled up, least disfigure the tooth.

The practice of drilling holes into teeth that give indications of the presence of dead pulps at right angles to their longitudinal axes and leaving these open, it is to be regretted is not yet obsolete. It is only rational treatment in part, and renders a permanent cure absolutely impossible.

True it permits the escape of gases arising from the decomposition and prevents their accumulation within the confined space, and consequent pressure upon and inflammation of the surrounding tissue, but it renders utterly impracticable the removal of the dead organic matter which, if done, would prevent the generation of these mephitic gases, and hence avoid the necessity for an escapement flue, which latter must always be a nasty catch basin, in which are collected the tooth-destroying elements.

Third, *do not plug up the canals tightly until you feel sure*

that there is no longer any danger from the formation of mephitic gases, and the pressure produced by their confinement within the walls of the canals.

The opening having been effected and the broken-down tissue removed as thoroughly as possible, the walls should be thoroughly disinfected. Creasote, carbolic acid, or proof alcohol, will all be sufficient. If there has been pain, or soreness of the tooth, iodine should be freely exhibited in combination with the disinfectant, but unless an abscess has already been formed great care must be taken to introduce these remedies gently and without force. If introduced upon a broach with cotton, this should not be wound so tightly as to form a piston in the root canal.

Sometimes, indeed, it may be necessary in the treatment of these cases, in which there seems to be an indolent, sluggish periostitis which does not yield to the resolvent iodine treatment, to bring about an acute abscess, and there is no quicker way to produce it than to plug up the roots tightly.

The roots having been thoroughly disinfected, the tooth is given a trial, a little loose cotton being passed in to prevent the ingress of other substances. It is rarely safe to seal up a tooth of this kind at the first sitting, and especially in cases where pulps have been dead for a long time, without giving patients any uneasiness; great care must be observed to avoid irritation of this nature. After a probationary period of a few days the cavity may be sealed up and the tooth again put upon probation.

Fourth, being satisfied that the root is ready to receive the filling, it should be filled with an indestructible material, which is sure to be carried to the apex of the root and leave no open or air spaces along the walls.

The tooth having stood the test of being tightly sealed up for three or four days or more, without any untoward signs, we may proceed to fill the root.

Almost any substance employed for filling teeth is good enough in straight and regular shaped root canals, but in flat or compressed roots with tortuous canals, where it is at times impossible to know just what the broach has effected, there is nothing more suitable than gutta percha dissolved in chloroform. This should be pumped into the canals, after which a brief time should be allowed for the separation of a portion of the chloroform, which may be hastened by blowing a warm blast from the air syringe into the cavity. A piece of warmed gutta percha should then be worked into the cavity until the root canal is filled. Another probationary period should then intervene before permanently filling the cavity

over this. It is believed that this material will come nearer to being a perfect root filling than any other in these cases, because it can be carried with reasonable expectation of success to every part of the canals, and if any particle of the pulp should have escaped removal by reason of inaccessibility, it would be rendered impotent for mischief by reason of its becoming encased by the gutta-percha solution. Of course in cases where there is an enlargement of the foramen it would not be a suitable filling.

Fifth. Never fill a tooth permanently until a sufficient length of time has elapsed since filling the root to leave a reasonable chance for expecting no evil results from the operation.

Sixth. Have the patient to understand that the treatment of these cases of teeth with dead pulps in them is not simple, and that while there is no probability, there is still a possibility, of an abscess and suffering before the tooth shall be restored to usefulness.

In this consideration of the subject of dead pulps we do not include pulps destroyed by ourselves as a necessary act, as in these cases there is generally no treatment necessary after the extraction of the pulp and before filling the root, although it is well even in such cases to defer the completion of the operation to another sitting.

Where the dead pulp has been allowed to go on in its mischief until periostitis has resulted in acute abscess, the pus should be carefully discharged through the opening in the tooth, and sufficient time should be allowed to have every particle drained off. When satisfied that no more is forming, which sometimes may take a week or more, creasote or carbolic acid and iodine should be forced into the canals so as to pass into and bathe the walls of the abscess, after which the case should be treated with the same caution already spoken of.

When abscess has become of long standing, and has established a fistula opening externally through the alveolus, it is generally very easily cured. In such cases, after removal of *débris* from the root or roots, these should at once be injected with creasote and iodine, or carbolic acid, and if a free flowing of the medicine can be effected through the root and fistula, one application is generally sufficient, and the tooth may then be filled without much more treatment.

Occasionally we meet cases of this kind, however, that seem obstinate and do not yield to treatment readily, owing to the difficulty of forcing the remedies through the canals, as in anterior roots of some lower, and buccal roots of upper molars. In such cases the medicine should be introduced

through the fistula by means of an abscess syringe, and the sulcus broken up. Generally these cases will yield to the remedies mentioned, but sometimes the aromatic sulphuric acid may be employed to good advantage.

Cases occur sometimes which do not yield to the treatment described, owing to the roughened and irritating condition of the apex of the root, which from long-continued bathing in the vicious secretions has become eroded; such cases call for surgical treatment, and may be met by trephining through the alveolar plate and excising the affected portion; or by extracting the tooth, excising the end of root involved, polishing and replanting the tooth. These operations will not often be consented to by patients, and are only warranted in extreme cases.—*Transactions of Illinois State Dental Society.*

TWO REMARKABLE CASES OF LIGATURE OF THE CAROTID ARTERY.

THE following case was brought before the French Société de Chirurgie early in the present session and was reported in the 'Gazette des Hôpitaux.' A young soldier, aged nineteen, was admitted into the Military Hospital at Versailles, suffering from uncontrollable hæmorrhage after the extraction of the second left molar. After trying in vain to arrest the bleeding by plugging the socket with wool soaked in perchloride of iron, by the actual cautery, and various other means, M. Hémar, the surgeon under whose care the patient was, after a consultation with five of his colleagues, proceeded to ligature the left common carotid at about the middle of its course. The state of the patient at first caused much anxiety; capillary hæmorrhage occurred for three days, clots formed in the wound, and on examination the urine gave an abundant precipitate of albumen. But the ligature came away safely on the thirteenth day after the operation, and the boy eventually made a good recovery. The history of the patient favoured the supposition of a hæmorrhagic diathesis, though none of his family had shown any such tendency. When younger he had suffered from frequent and severe attacks of epistaxis, so serious, in fact, that, although only the son of an agricultural labourer, he never went about without a bottle of perchloride of iron in his pocket.

The necessity for this "heroic" treatment was seriously questioned by several eminent members of the Society. M. Tillaux said he should be glad to have more precise information as to the steps taken by M. Hémar to arrest the

hæmorrhage before performing so serious an operation. He himself had generally found plugging with lint and perchloride of iron, or a wax plug, sufficient for the purpose; in one case he had arrested the bleeding by means of digital pressure maintained for several hours, and he would persevere in this mode of treatment for twenty four, or even forty eight hours, rather than tie the carotid. But even admitting that ligature of a vessel was necessary, he held that it was not justifiable to tie the *common* carotid to arrest hæmorrhage which evidently came from a branch of the *external* carotid. To say that the latter operation was easier was not a sufficient excuse; ligature of the external trunk was much less dangerous to the patient, and if sufficient length free from branches could not be found, there could be no objection to placing a ligature on the facial and lingual arteries, as well as on the parent vessel.

M. Verneuil expressed his entire accordance with these remarks.

M. Magitôt said that although he had seen a considerable number of cases of alveolar hæmorrhage, many of them in patients who were the subject of hæmorrhagic diathesis, he had never yet met with one which resisted the ordinary means of treatment. In place of the wax plug, he preferred to use one made of gutta percha, mixed with charpie; this was introduced whilst soft and was kept in place by the pressure of the opposite jaw. The use of this simple contrivance had been attended in his hands with the greatest success.

M. Le Fort said he agreed with what M. Tillaux had said. Ligature of the common carotid was always a most serious operation, the mortality attending it being nearly 50 per cent. Ligature of the external carotid was sufficiently formidable in those who were the subject of hæmorrhagic diathesis, since they were very liable to secondary hæmorrhage. M. Farabœuf replied on behalf of the author of the communication, that M. Hémond performed the operation only after waiting six days and trying all possible means of avoiding it. At the same time he had some doubts himself whether these methods of arresting the hæmorrhage could have been properly carried out. As to the seat of the ligature he thought that, under the circumstances, it was justifiable, since the external carotid was surrounded by a number of veins and small vessels, and the hæmorrhage from these probably have been considerable. The danger in such cases was not so much the chance of secondary hæmorrhage from large vessels as from capillary oozing, and in this respect ligature of the common carotid was attended with the least risk.

The other case is recorded in the 'Boston Medical

Journal,' and the patient was treated at the German Hospital at Philadelphia.

A patient, over fifty years of age, who had been suffering for years with trifacial neuralgia, and had all of his teeth upon one side extracted without relief, came under the care of Dr. Ferdinand H. Gross, one of the visiting surgeons to the hospital. It was a very severe case of tic, involving all three of the branches of the right fifth nerve. The patient was in almost constant torture from the rapidly recurring pains. By pressing upon the common carotid artery of the right side, the attending surgeon found that the pains were controlled; he therefore decided to adopt the recommendation of Nussbaum, and ligature the main arterial trunk. This operation was accordingly performed by Dr. F. H. Gross, a double ligature being passed round the right common carotid artery. The patient rapidly recovered, and the effect was very marked. Immediate relief from neuralgia was experienced; and although in the course of about two weeks slight twinges were felt, there has been no return of the painful spasms. About a month later, the patient had an attack of pneumonia, which he attributed to exposure after leaving the hospital, but otherwise his recovery was not retarded, and the relief far surpassed his expectations.

In this case there is probably no question as to the operation being justifiable according to the present state of our knowledge. Still, to be obliged permanently to obstruct the course of a main artery in order to suspend the functions of the small nervous filaments which accompany it, closely resembles the legendary "Origin of Roast Pig" as related by Chas. Lamb; and it is much to be desired, that some simpler method of attaining this object may be discovered.

DENTAL PATHOLOGY AND THERAPEUTICS: FROM A CONSERVATIVE "NEW DEPARTURE" STANDPOINT.

By F. E. HOWARD, M.D.S., Geneseo, N.Y.

Read before the 7th and 8th District Dental Societies, October 26th, 1880, at Rochester, N.Y.

IN turning over the pages of American Dental literature nothing astonishes an English reader so much as the amount of space occupied by articles and letters for and against the "New Departure." In England the "New Departure" is an old story; there may be occasional differences of opinion

as to whether gold is, or is not, the best material for fillings under certain circumstances and in certain situations, but the gold-at-any-price-and-for-every-purpose men are almost extinct, and those who have not been converted to eclecticism have long since been silenced. But in America they are the great majority, the eclectics but a small band, and the dispute between the two has, especially during the last two years, been carried on with much acrimony and no little personality. What has somewhat complicated the position of what may well be called the liberal party is the fact that, instead of contenting themselves with an appeal to experience and to practical results, they have thought it their duty to invent and defend a special pathological theory. This pathology has about the same relation to their practice that Professor Lister's germ theory has to antiseptic surgery, or the Thirty-nine Articles to the Bible. Still the apostles of the "New Departure" persist in making it an essential part of this creed.

The tenets of the "New Departure" school are now tolerably well known in this country, where, indeed, most of them have long been acted upon; but as we believe that its galvanohumoral pathology is not generally understood, we reprint the following paper in which its chief points are sufficiently clearly indicated.

THE pathology of secondary decay is viewed very differently by many at the present day from what it was five years ago. Up to about 1875, it was generally supposed that secondary decay about fillings arose from "exactly" the same causes that produced the original disease, and was identically the same thing,—"*viz.*" "decomposition of tooth structure, the result of solvent action of acids which have been generated by fermentation going on in the mouth;" or the "chemical union of mineral constituents of the tooth, with elements contained in the fluids to which it is exposed;" the result of wanton carelessness, or inability on the part of the patient to maintain absolute cleanness about fillings.

When secondary decay did occur about gold fillings, and it could not be charged to the results just mentioned, it was attributed to "defective manipulation." Operations were repeated from time to time, and repairs made with the same results, by "this faction" of the profession.

Another class of the profession was not satisfied with this explanation of the cause of secondary decay about fillings, and proceeded to investigate the subject, from a *scientific standpoint*. The result of such investigation has led to the development of new theories, termed the "New Departure."

They maintain that secondary decay about fillings may be, in many cases, the result of incompatibility between filling and tooth bone. The result of conductivity of fillings. And that the successful treatment of many cases require a physiological change in the organ, a course of therapeutic and antiseptic treatment, not "recognised" prior to these investigations. They claim that at certain stages of decay, a metallic filling (we will take "gold," as this is the best conductor) promotes decay, and in many cases it is the *prime agent in provoking it*. This is the view we are compelled to accept, from a careful, practical observation, in everyday practice.

When this is manifest, it is shown in that class of poorly calcified teeth, and in those of young subjects, where the "aqueous" or vital element is in excess of the mineral constituent. If these teeth are filled with gutta percha or any non-conducting material, though the fillings may soon be worn away by attrition, the decay is absolutely stopped so long as the material remains in a position to protect the walls of the cavity from external causes of decay, such as preventing the ingress of particles of food, and foreign substances in general, even though "dampness" pervade the whole *cavity underneath the filling*. And there are few cases where gutta-percha fillings are water-tight. In this class of fillings, though often imperfectly done, decay in the very poorest quality of teeth is effectually arrested.

Why so? "Because the aqueous element of the tooth, being of the same nature as the solid constituent, has no power to act upon the latter, and cannot cause decay, or dissolution, until the equilibrium is disturbed." "Decay only takes place, when the external fluid is rendered chemically different by confinement in fissures, pits, or cavities, and is thus changed from the other fluids, to which other surfaces of the teeth are exposed." The non-conducting filling being in harmony with the tooth, the aqueous element remains neutral or becomes neutral by contact with this vital fluid. This is the case with leaky non-conducting fillings, consequently there is nothing to excite chemical action. The decay is arrested by external excitants being shut out, such as thermal changes, electrical currents, and decomposing fluids, and nature goes on unmolested in the work of more perfect calcification of the organ.

This, together with the usual antiseptic and disinfectant remedies, is the topical therapeutic treatment that such cases require. And yet, this is not the course that it is best to pursue in all cases. It is often advisable to use a material that is antagonistic and incompatible with the tooth structure.

Under these circumstances we must anticipate future decay, and make calculations accordingly with the idea of refilling or repairing at no distant future. Because if we fill these poor, soft, or imperfectly calcified teeth with gold, we must depend upon it the aqueous element, natural to this class of teeth, is a condition that is liable under many circumstances to work mischief, despite all efforts on our part, not excepting those of even a few of the best operators we have.

In this we mean to show that we have an element to contend with that mere mechanical means will not overcome. Gold is not a "panacea" for all conditions of decay of the teeth, any more than some "patent medicines" are for all ills that flesh is heir to. For an example, we will take gold, and fill this class of teeth in such localities as proximate and labial surfaces, and the filling will often exert a deleterious condition. There is a certain class of teeth that we have to operate on that we find affected by decay—sometimes it might be termed erosion more properly—where the lime salts are dissolved out at a line ascribed by the gum, white opaque patches are presented that can often be removed with the thumb-nail, being so soft and chalky, caused by the dissolution of earthy matter occasioned by acid secretions. Now, we must admit that if we prepare a cavity of this sort, and fill with gold, the margins about the fillings seem to fairly melt away, like snow beneath the noon-day's sun. This is not always the result of imperfect manipulation; if these fillings are absolutely water-tight in themselves the result may be the same. Often there is so much of this aqueous element in the organ that it is impossible to dispose of moisture about the fillings for any great length of time, no matter how skilfully the operation may have been performed. For in this class of teeth there seems to be, under some circumstances, a *retrograde action* that "supersedes" the topical therapeutic treatment that may have been applied to the cavity before filling.

And this is one thing that the opponents of this theory have lost sight of or would not look at squarely in the face, but hang their faith on this peg: that if there is no leakage about a gold filling there can be no electrical action; and if our fillings are water-tight so as to perfectly exclude external moisture, we have accomplished all that is necessary for success. A few have recognised this in a measure, but claim, where this aqueous condition is manifest, it is confined to the dentinal tubuli and not so with the enamel—the latter being of such a dense structure it is devoid of this aqueous element entirely. And that if a filling at the margins be perfectly water-tight, the moisture from the dentinal tubuli

will be inert to act deleteriously upon the tooth, for no electric current can be established.

But this is an error. For it has been shown conclusively by Dr. Abbot (and, I think, others) that, "the enamel is not a crystal, but living tissue endowed with the same vital element as dentine, only, to a less degree." Now that this is an established fact, it is our conviction that a filling often becomes a battery in many cases where the operation is "absolutely perfect." And the result is electro-chemical decomposition about the margins of fillings, in spite of our best efforts.

Doubtless many of you have seen discoloration about fillings made with "crystal gold" some years ago of a bluish character, that is generally pronounced "leakage." In fact this gold was discarded by many because of the discoloration that often followed its use. In many cases this was not the result of faulty operations. I have seen many of these fillings, inserted by an eastern gentleman of acknowledged ability, whose operations with gold are perfection. About many of these fillings there was a "blueness" which was proof positive of chemical action. The acid used in the preparation of this gold had left its mark. *The iron had entered the tubuli, and the aqueous element in the tooth was fuel sufficient to feed this chemical fire.* In such conditions, with soft teeth, time generally pronounces the verdict of failure. With well calcified ones the power of resistance to such impressions may prove a success.

When we think of the recognised make up of the different classes of teeth, and hear the claim made that gold is the best filling for all teeth, or as good as any, if properly manipulated, it reminds me of something that has been said by Dr. S. B. Palmer on this subject, and it goes to show how absurd it would be to apply this principle of *gold in all cases* to other matters outside of the mouth, where *judgment should govern our operations.* He says:—"In cases of repairing a leaky cistern, wisdom would demand knowledge of the material of which the cistern is composed, and the nature of the repair necessary. Then call a carpenter, plumber, or mason to make the repair. A porous cement cistern would not be benefited by the carpenter or plumber, only by a mason, and the application of a chemical to fill the pores over the entire surface."

And in this class of teeth mere mechanical manipulation of a material that is indestructible in itself cannot be made subservient to meet the requirements of all cases.

Dr. Flagg uses no gold in his own practice at the present day. Yet this is not the teaching of the new theory. He

says:—"That the 'New Departure' concedes the use of gold as a filling material whenever and wherever it can be used for the preservation of teeth as successfully as other materials. The new departure begins where gold leaves off, to help gold, if need be, to sustain its exalted reputation, and to furnish a substitute in other materials, in cases *where gold is inadmissible.*"

And he remarked at the outset, in presenting his paper to the Odontological Society, New York, in 1877, which excited so much discussion and comment:—"I do not want to say anything to you of the teeth which you are in the habit of filling successfully, and, as we express it, satisfactorily with gold—teeth of dense structure, whose cavities have walls so strong that you can impact a filling which lasts a lifetime. But I do ask that you will gradually discontinue this packing of gold into teeth that are so poor, so frail, so unsubstantial, that it is, to say the least, doubtful whether the result will be creditable to your profession or satisfactory to your patient."

This is the point I wish to make. And it must be admitted by any intelligent, unbiased Dentist, that many of the non-conducting fillings that we have at our command, meet the requirements of such teeth better, though the filling may be short-lived in itself. But it is really the topical therapeutic treatment that such cases often demand.

Who is there, that has practised for some years, that has not seen groups of gold fillings on labial surfaces, one adjoining another, put in at different times, or removed and renewed the whole operation from time to time? We do not denounce the practice; often we are compelled to choose the least of two evils. If the subject cannot have the case renewed from time to time, when the plastics are used up (for in such localities, gutta percha, oxychlorides, and the like, are soon worn down by friction and attrition), I trust we have something better in the "oxy-phosphates." The latter I have experimented with for two years very satisfactorily. But this is scarcely time enough to determine their durability, and in what class of mouths, and what condition of the secretions, they will do the best service. And when this class of plastic fillings are not admissible in our judgment, according to the varied circumstances that may be presented, we must do the next best thing, which would be to devote much more time to the operation, and increase the expense by a gold filling, often at the *expense of the vital organisation of the tooth*, instead of having that soothing, antiseptic, and therapeutic condition imparted to the organ by the non-conducting fillings. The latter assists nature in

the work of perfect development, while the former "sometimes" retards this progress, for under chemical excitement she cannot perform this office.

I recognise gold as superior to all other material in general that we have at our command, if skilfully manipulated. But it must be used with judgment in its proper place. We must *acknowledge its conductivity, consequently its inadaptability to meet the requirements of all cases.*

The therapeutic effects of English precipitated chalk and lime water would do much to stay the progress of decay in this class of teeth, by counteracting the acid condition of the secretion usually manifested in such cases. A hygienic diet with young subjects would work a great change. But what can we effect in respect to hygiene? But little. People will eat what their appetites crave, even if it is at the expense of teeth. The good advice that we may be inclined to give on this subject will not be heeded by many. The topical treatment, conducted by the Dentist, is about all that will effect much, aside from the beneficial results of ordinary cleaning. This most all will do.

We must depend upon our exertions; success is only accomplished by good judgment on our part, and a thorough knowledge of the requirements that each case demands.

The application of such remedies as carbolic acid, creosote, thymol, oxide of tin, and varnish, will effect much toward making perfect operations in gold a success. By the affinity of the tooth elements for such remedies, the tubuli are sealed up in a measure and the aqueous element disposed of in a degree. Our object should be to prevent chemical action by the application of such remedies as tend very much to dispose of the aqueous element. If this is accomplished, and the gold operations are absolutely first-class, our efforts are generally crowned with success. If we do not succeed in controlling chemical action, non-conducting fillings will usually best meet the requirements. This precaution would often make successful an operation in gold that would otherwise prove a failure. In fact, the application of carbolic acid, or creosote, should never be omitted. For it disinfects the cavity, thereby acts as an antiseptic, obtends sensitiveness, lessens thermal shocks, and imparts general comfort and satisfaction to the patient.

When cavities are deep, it is usually best to line such with some non-conducting material, as a decided benefit will be derived from such a practice. It is plainly shown that a tooth affected with caries does not remain passive and inert to impressions of decay; but, on the contrary, great efforts are made by nature to protect pulps from exposure and from

carious influences. And the half decomposed calcareous condition of caries in cavities, or superficially located, is often transformed into a hard and bony-like consistency, a condition that further decay makes but slow progress in. Now this is the natural work of nature ; it may be assisted, or retarded. Irritation will produce either.

A gutta-percha filling will be neutral, and allow nature to go on with her work uninterrupted in calcification of the fibrili.

An oxychloride filling will stimulate the pulp to an active condition, if rightly applied. If too strong, the hydrochloride, an element that the material possesses, may inflame the pulp, and death of the organ may ensue.

An oxidised tin filling prevents galvanic action, an antiseptic condition is established, leaving the walls of the cavity in the most favorable state to resist decay.

Dr. S. B. Palmer tells us how amalgam fillings preserve the teeth. He says, "Amalgam at first acts in the same manner as gold—though in less degree, because it is not so good a conductor. But later the poor amalgam becomes itself oxidised, and the current is then lessened. Also the metallic colouring matter thrown off by oxidation is received into the softened bone, until the once positive element becomes neutral."

Thus decay is held in check. A gold filling does not oxidise, and cannot hold decay in check like tin and amalgam, and as often manipulated and inserted, irritates the vital condition so that decomposition and disintegration is promoted. How so? The gold filling becomes under some circumstances an agent of circulation. It promotes chemical action, it excites or increases this by establishing a galvanic current, which acidifies saliva, and then aids in producing an agent like acid, which irritates the vital organisation of the tooth, causing it to break down at the margin of the filling. Then we have a condition established that we term electro-chemical decomposition. This same condition of things in "well calcified teeth" would not be likely to make any impression upon the organ in this direction.

Thus it is that a gold filling, in certain situations and in well calcified teeth, may last forty years ; where one, equally good, or better, in another class of teeth, might not last forty weeks.

The "new departure trio," Drs. Palmer, Flagg and Chase, have developed these principles. They have been recognised as existing by many for years. They have demonstrated plainly, to my mind, the cause and effect of this theory. In practical observation I have seen its working. It has better

fitted me to accept the situation, and prepared me to battle with the enemy. It has shown me the remedy for this and that case. It has given me instructions how to master the elements of decay upon scientific principles, instead of by merely mechanical means.

These men are benefactors. They have put at the disposal of the profession principles with which to hold in check this destructive element. It is not going to revolutionise operative Dentistry, by causing men to discard gold, and stuff cavities with plastics. The "new departure" does not advise anything of the kind. It should not be assailed on the ground that it is degrading and will lower the standard of Dentistry. Gentlemen, it is the reverse. The proposition of my esteemed friend, Dr. Flagg is: *That you enlarge the field of usefulness and the work of conservation of the teeth.*

He says: "Make a beginning with the teeth that you would ordinarily extract, and treat them. Make 'that' Dentistry. Fill these with plastic fillings. It is from a desire that the forceps be laid aside that this advice is given." (Mark it.) "It is from a desire that our patients shall eat upon teeth the roots of which are in their jaw. It is from a desire that they shall be exempt from the infliction of artificial work. It is from a desire to extend the blessings which the hand of our profession holds to bestow. It is that we may be sought rather than avoided; that we may be extolled rather than decried; that we may be esteemed rather than censured; that rather than be feared we may be loved and respected."—*The Dental Advertiser.*

Dental News and Critical Reports.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF
LONDON.

ANNUAL GENERAL MEETING, JANUARY 17TH, 1881.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President,
in the Chair.

MR. EDWARDS was balloted for and duly elected a member of the Society.

Messrs. W. Hern and J. M. Acland were elected auditors

of the Treasurer's accounts, which with his report were adopted at the meeting.

The Report of the Council was unanimously adopted.

The following were elected as Office Bearers for the ensuing year :

President.—R. Hall Woodhouse, M.R.C.S., L.D.S. Eng.

Vice-Presidents.—W. A. Maggs, L.D.S. Eng., Marcus Davis, L.D.S. Eng.

Treasurer.—C. Robbins, L.D.S. Eng.

Secretaries.—F. Newland Pedley, L.D.S. Eng., Rees Price.

Council.—J. S. Amooore, C. B. Mason, A. Alex. Matthews, W. Matthews, R. B. Turner, J. M. Acland, S. C. Buckland, H. J. Gould, W. Harrison.

The PRESIDENT having delivered a short address,

MR. W. A. TURNER read a paper on "Cleft and Perforate Palate."*

In the discussion which followed, the President, Messrs. Robbins, L.D.S., Truman, M.R.C.S., Maggs, L.D.S., Pedley, L.D.S., Amooore, Hern, and Marcus Davis, L.D.S., took part.

Messrs. L. READ, L.D.S., and HERN, proposed and seconded a vote of thanks to Mr. Turner, which was unanimously carried.

On the motion of the PRESIDENT and MR. C. ROBBINS, L.D.S., it was resolved and carried unanimously that "the best thanks of the Society are due to C. J. Fox, Esq., M.R.C.S., L.D.S. Eng., for his continued kindness in printing its Transactions for the Society, and for the gift of two copies fortnightly of the 'British Journal of Dental Science.'

Miscellanea.

AMERICAN NOTES.

FROM A CORRESPONDENT.

AMERICAN PROGRESS AND FLOURISHING DENTISTRY.

THOSE members of the human family who live on this side of the Atlantic think they are doing a great deal to advance civilisation. The fact is, they say, that unless the great American nation had arisen, the *raison d'être* of this poor ramshackle world would have been so inconsiderable that Mother Shipton's prophecy would have been anticipated,

* See page 102.

and we should have collapsed years ago ; but America has arisen, and perhaps the collapse of this planet may not take place in 1881 after all, the United States affording the preservative salt. The general feeling of Americans is that they are inferior to no nation and superior to all. At the risk of being charged with revealing an open secret, I will say that the American Dentist shares intensely this feeling, which some Englishmen might regard as too self-opinionated. I do not deny that Americans have some reason to be proud of the position they have already reached in the commercial councils of nations, and Dentists may share, without doubt, in the general self-congratulation. But this spirit can be, and is, carried too far.

The physical necessities of the people having called into existence the American Dentist, and throwing into his work the energy and spirit inherited from England, he would have disgraced himself if he had not advanced to his present position. If a man exalts his merits because he is honest, he is told that he has only done his duty, and to do one's duty is not so praiseworthy as to fail to do it is deserving of blame. Just so, climatic conditions, coupled with a popular precocity, have been the primary cause of a demand for Dentists in greater abundance than they are demanded in England.

It is said that the first thing the new settlers in Mr. Thomas Hughes's new colony in Tennessee did, was to lay out a lawn-tennis ground. If they were wise in their generation, the second thing would be to set up a Dentist's office. The conditions of life on this continent are wonderfully destructive of teeth, though no literary medical man or Dentist has yet undertaken to explain fully and fairly the reason, or to trace the connection between American life and decayed teeth in all its ramifications. An English journal said, a few days ago, that America was doing but little to advance the world. One of our great pulpit orators took up the challenge, and argued that to seek to be at peace with all men, to conquer nature, and to further the interests of commerce, were far more calculated to advance the world than all the armies and navies, protocols, and treaties extant. The spirit of mercantile enterprise, invention, and the desire for accumulating riches, that pervade the American atmosphere, and which, it is contended, is doing so much to bring about a millenium, is shared by Dentists, and the amount of life which this spirit infuses into the profession is phenomenal. It is true that there are men to be found dotted all over the United States who are content to sit in their offices with little to do from one

month's end to another, but, on the other hand, hundreds are to be met with everywhere who imagine that their special function is to invent something, to take out some patent or get around some one else's, or to give to the world some heaven-born secret as to materials for filling teeth, inhaling nitrous oxide, or for making Dental chairs. Our country is young and naturally vigorous. Our climate is dry, and we are all nervous. We live very rapidly, and our life soon closes. We eat rapidly such foods as come easiest to hand, or such as are most toothsome and which please our pampered appetites the best. We neglect that kind of food which feeds the bone-tissue, so our teeth decay and Dentists flourish.

DENTISTS' DIFFERENCES.

It strikes me forcibly that one reason why certain sections of the Dental fraternity in England come into collision with each other is, because when you have laws passed they are rigorously carried into effect. Would-be Dentists know that in England they have no chance of getting over a wall into the professional lines; they must go through the common door, or the minions of the law will lay hold of them. Then follows a division into parties of those who favour the law and those who object to it. But the law is not carried to so fine a point in this country, and a man, if he is tolerably alert, can, in certain districts, get round it as he cannot in England.

Though the profession in this country does not split itself on the rock of the law, various sections do disagree on some minor topics. For example, a few days ago I heard it said at a meeting of Dentists that a tooth, if as frail as a cobweb, could be advantageously filled with gold. While one school will be advocating the use of "dentoplast," "osteoplast," and other plastics for teeth that are mere shells, another will argue that all these are wrong, and that gold alone is capable of being used with success. Then comes the question as to the kind of gold to be used; but the number of the old-fashioned advocates of soft foil is growing "gradually smaller and beautifully less."

The "new departure" men—those who almost prohibit the use of gold, but favour plastic-filling materials—are not very noisy, and perhaps their comparative quietude bespeaks more ground for their theories than if they were more clamorous. But they are in a feeble minority at present, and seem inclined to hide their lights under a bushel.

There are, again, those who, in season and out of season, declaim against the use of all anæsthetics. They do not

believe in the extraction of teeth at all, but if, in exceptional cases, the forceps are obliged to be called into use, even then they would not use even so harmless an agent as nitrous oxide. These anti-anæsthetic, anti-forcep men are also in a minority, and, unlike most minorities, they are not very noisy. The bulk of our practitioners, though they may have their individual fancies and foibles, plod on with earnestness at their work. The lack of quarrels in their ranks, too, is a pleasing feature, for though the convulsions which accompany quarrels are sometimes provocative of a greater clearness of the atmosphere, yet, as a rule, they are the cause of a great waste of time and ink.

JUSTICE TO AMALGAM.

I MUST now say something about amalgam, a material that has been much abused; perhaps most by some of those who use it most. It is my opinion that the proper use of amalgam calls for a higher standard of fidelity and carefulness, and as much skill and manipulative ability, as any material now in use for fillings, but it is very easy to make them so that they will appear well at the time, and yet be so very imperfect as to be in the end of very little use for the preservation of the teeth. There are some kinds of amalgam in common use with which I believe it is a physical impossibility to make a good filling, and there are many with the qualities of which I am not acquainted. The same one should be used until the operator is perfectly familiar with its peculiarities, so as to be master of its working qualities, for they will not all admit of the same style of manipulation. The cavities must be very carefully prepared, and in almost every instance the rubber dam *must* be used, for there must be no *chance* of getting moist, unless in the forlorn cases where a *good* operation is out of the question. The materials should be quickly and thoroughly mixed in just the right proportions, and will be so dry and powdery as to be a nuisance to get where it is wanted in many cases. It must be *packed* in small quantities, and with points that will condense it well into corners and undercuts (a small ball burnisher is best in places where it will go). It sets so fast that two mixings will often be necessary in places where it is difficult to carry it to its place and the filling is large. It must be packed and worked together solidly throughout, with much the same force as is used for condensing by hand the surface of a soft foil filling. If dry, as it should be, it is very difficult to build up a corner with it, and in most compound fillings a

matrix should be used. One is easily made by bending slightly, if necessary, a piece of separating file and pushing in a wedge of soft wood behind it, or a piece of sheet lead may be bent around one side of the tooth across the cavity and held by ligatures. Twice the time will be saved that it takes to adjust them, and better work can be done and a more satisfactory contour obtained. They can be immediately removed and the fillings trimmed to very nearly its final form. It is indispensably necessary that every amalgam filling should be polished at a sitting subsequent to its insertion.

It is impossible to deny that amalgam fillings *can* be made in the way I have indicated so as to be thoroughly good operations, in the same sense and for the same reasons that well made gold fillings are good operations. The characteristics that make them so may be described in the same terms, that is, they will not leak; they will take and retain a smooth surface; they will make a smooth margin that will not crumble. The difficulty of doing good work with amalgam often increases with the smallness of the cavities if approximal ones, and I believe that most approximal cavities not reaching the grinding surface, if of sufficient depth and having good walls, are better filled with tin foil than amalgam. If Williams's tin cylinders are used, of style B, which are rolled pretty hard, a little practice will enable one to make them in many cases as quickly and easily as with amalgam, and with the advantage of finishing at once. There are many places, especially in young or soft teeth, in which I question whether gold will make as useful a filling as tin. The range of application for tin is quite limited, but within its proper limits I believe it one of the most useful materials we have. The great convenience of these tin cylinders, and the fact that they appear to be but little known or used, are perhaps sufficient reasons for directing your attention to them particularly. The tightly rolled ones, style 1 B and 2 B, can be used in about the same way as folded pellets of foil, and by splitting them lengthwise with the scissors as small pieces as are desired can be easily obtained. Tin is practically non-cohesive, and one who never makes a gold filling without lighting his annealing lamp, will be likely to need a little practice before acquiring facility in its use. Every piece, even to the very last, must go deeply enough into the cavity to be retained by wedging, but it is considerably softer and more easily wedged tight than gold; the surface condensation will take effect more deeply, and is far more rapidly and easily trimmed and finished.

I am not one of those who desire to see the use of amalgam increased, but I wish that men should feel as much under obligation to maintain a high standard in their operations with it as they do in their gold operations, and to keep them as carefully under the supervision of their consciences and their professional pride. If that is accomplished amalgam fillings will be found less remunerative than gold ones, and so the motives of self-interest will be on the side of the better material. I believe that such treatment of the "amalgam question" will do more towards restraining and diminishing its improper use than the wholesale and unreasonable denunciation that we sometimes hear.—('On Filling Teeth,' by Dr. E. Noyes, of Chicago.)

SCIENTIFIC ACCURACY.

WE give elsewhere* a specimen of the style of *discussion* occasionally indulged in at meetings of the American Dental Association. The following is an extract from a paper read at the same meeting by a Dr. Patrick (D.D.S., of course), which is equally remarkable in its way. It is but right to say that the proceedings generally were of a very different character, and it is much to be regretted that such exceptional episodes should have occurred. A little more firmness on the part of the executive is evidently desirable.

"If vapour rises from mercury at the freezing point of water in sufficient quantity to whiten gold leaf, an amalgam filling subjected to the heat of the human body (98° F.) must gradually part with its mercury by vaporisation; this can be demonstrated by selecting a few old amalgam fillings and after accurately weighing them, submit them to a heat sufficient to evaporate mercury; this being done, again weigh, when the mass will be found to weigh as much as it did before heating. As a further test of the divisibility of mercury under the influence of heat, take 100 parts of Fletcher's alloy, add 60 parts by weight of mercury, and allow the mass to harden, then submit it to a sufficient heat to vaporise the mercury and weigh the residue, and there will be found 100 parts minus the mercury. Fillings of amalgam taken from the mouth after being in use one or two years and subjected to the same influences will yield a little mercury; enough to whiten gold leaf, but not enough to reduce the mass 10 per cent in weight.

* Refers to a paragraph headed "Plain Speaking," which has been unavoidably omitted from this number.—Ed. 'B.J.D.S.'

“When an individual, either by bad counsel or a false economy, has been subjected to mercurial or amalgam treatment for diseased teeth, we find that fifty parts of the mercury out of the sixty used in forming the amalgam are vaporised by the heat of the body in a few years and taken into the system in small, but regular quantities—the most potent manner of administering mercury for constitutional effect. Should not this be sufficient to induce every conscientious practitioner to discard all amalgams from the list of filling materials, and be the means of inducing others to be less presumptuous in their speculations, and more honorable and resolute in their practice?”

The extraordinary statements thus confidently made have elicited a reply from Mr. Fletcher himself, who thus disposes of his adversary.

“Save us from our friends! If Dr. Patrick knew *anything* about this subject, he would know that there is not, and never was, except in the imagination of the ignorant, the smallest atom of truth in his statement. Such champions for gold plugs simply bring ridicule on their own cause, and Dr. Patrick cannot bring the smallest proof to back his statements.

“To test the question of evaporation of mercury from plugs, I made twelve each of 200 grains weight, of different alloys, varying in proportions from 10 per cent. to 80 per cent. of mercury. These plugs I placed in the main steam pipe leading from the boiler to our steam engine, which was running on an average fourteen hours daily—the whole of the steam used passing the plugs. At the end of one month four of the plugs were removed. One was partially fused and the weights were respectively, 200·00, 200·05, 200·10, 200·40 grains. There was *no loss but an increase* in weight from surface oxidation. At the end of three months the remainder of the plugs were removed and all showed a trace of increase in weight from the same cause.

“I pray Dr. Patrick to digest the above, and in future to make statements which he is in a position to prove, if he wishes his statements to have any value.”

A TRIUMPH OF DENTISTRY.

At the last meeting of the Medical Society at Strasburg, reported in the ‘Medical Gazette of Strasburg,’ Dr. Jules Boeckel presented, in the name of M. Sauval, Dentist, a lady for whom the latter had extracted a small molar tooth for

dental caries with violent pain; and, having found it slightly carious at the bottom of its root, he sawed off the points of the root, filled it with gold carefully throughout the root canal, and then reimplanted the tooth. The lady was freed from all her pain; the tooth re-established itself solidly in the mouth; and, at the date at which she appeared at the Society (three weeks after the operation), the tooth served for mastication as well as the other teeth. This is certainly a remarkable example of what is technically described as "Dental autoprosthesis with aurification."—*Brit. Med. Journ.*

THE PLEASURES OF SCIENCE.

WITH reference to the paragraph under the above heading, which appeared in our last issue, Mr. Crowther writes to say that the silver medal was not presented *to* him, but *by* him to the Society, to be awarded as stated. However, though the facts are a little different from what we supposed, the moral of our story remains the same.

THE INTERNATIONAL MEDICAL CONGRESS IN LONDON.

THE organisation in anticipation of the great gathering which is to take place between August 2nd and 9th, in this year, is being steadily completed. With regard to Section 12 (Diseases of the Teeth), we have already stated that Mr. Edwin Saunders is to be President, Messrs. John Tomes and Chas. Spence Bate, Vice-Presidents, and Mr. Chas. S. Tomes, Secretary. The following gentlemen have recently been nominated as Members of Council in this Section—viz. Messrs. C. H. Bromley, Esq., Southampton; H. Champion, Esq., Manchester; S. Cartwright, Esq., London; A. Coleman, Esq., London; D. Corbett, Esq., Dublin; W. Hunt, Esq., Yeovil; G. A. Ibbetson, Esq., London; F. B. Imlach, Esq., Edinburgh; J. H. C. Martin, Esq., Portsmouth; J. R. Mummery, Esq., London; Dr. P. Orphoot, Edinburgh; T. A. Rogers, Esq., London; Dr. John Smith, Edinburgh; J. S. Turner, Esq., London; T. Underwood, Esq., London; C. Vasey, Esq., London; Dr. Joseph Walker, London; Dr. J. C. Woodburn, Glasgow; A. J. Woodhouse, Esq. London.

The following is the list of the subjects which have been selected for discussion on this occasion:

1. Replantation and transplantation of teeth.
 2. Premature wasting of the alveoli, and its amenability to treatment.
 3. The share taken by septic agencies in causing diseases of the dental pulp and periosteum.
 4. Mercurial and syphilitic teeth, and the causes of irregularities of position of the teeth.
 5. New Dental instruments and methods of operating.
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THE GENERAL MEDICAL COUNCIL.

WE understand that Thursday, February 3rd, is the date fixed for the meeting of the General Medical Council, the urgent necessity for a settlement of the "Dental Business," which was left open at the termination of the last session, being one of the chief causes of this unusually early meeting.

Obituary.

MR. JOHN CROOKS MORISON, L.D.S. ENG.

MANY readers of the Journal will learn with sad surprise of the untimely death of this young and most promising practitioner. At the early age of twenty-four he has fallen victim to a virulent attack of typhoid fever, which pulled him down with great rapidity, and ended fatally within a week of his being laid up.

Few men, at such an age, have been called upon to take so active a part in promoting the interests of our profession, but to an exceptional opportunity Mr. Morison brought exceptional talents. On him his grandfather's mantle seemed to have fallen, and with his name he appeared also to have inherited an enthusiastic love of his profession. A native of Glasgow, but latterly residing in London, Mr. Morison enjoyed many and great advantages as pupil with Mr. Alfred Hill, and as a student at the Dental Hospital, Leicester Square. Immediately on coming of age he obtained the L.D.S. of the Royal College of Surgeons, and, returning to his native city, entered upon the management of the practice of his late grandfather, Mr. John Crooks.

Thus freed from the depressing anxieties inseparable, in most cases, from originating a practice, Mr. Morison threw

himself heartily into the work of promoting the general interests of his profession in his native city. From the first meeting, from which all that has been done in connection with Dental education in Glasgow dates, to within some ten days of his death, he took active part in all that was doing.

Mr. Morison held the appointment of Lecturer on Dental Anatomy and Physiology at the Dental School, Dental Officer at the Dental Hospital, and Member of the Medical Faculty of Anderson's College. On the formation of the Students' Society he was elected president, and throughout has taken a very active interest in promoting its welfare.

In private practice Mr. Morison's career was a continued success, his frank and gentlemanly bearing, together with his thorough knowledge of his profession, gaining for him a most favorable reception. Amongst his colleagues at Anderson's College he was greatly esteemed; clear-headed, conscientious, and thoroughly to be relied on in whatever he undertook, his counsel and assistance will be much missed by them, and his memory will be cherished as one of the most agreeable reminiscences of a most eventful time. His remains were escorted to their last resting place by his colleagues on the Dental staff, and a goodly number of past and present students.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

AMALGAM STOPPING IN FRONT TEETH.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Will you allow me to say a few words in defence of Mr. Musgrave's remarks on "Gold *versus* Amalgam," though I agree with a great portion of "Fair Play's" letter in your last issue. I also have had the pleasure of seeing and operating on the mouths of a good many patients who have passed through the hands of some of the leading Dentists of Liverpool and Manchester, the majority of whom have had large amalgam fillings in the posterior portion of the mouth. When I have asked why gold was not put in, the reply has been, Mr. So-and-so thought the cavity too large, or the

tooth not worth it, though the patients have been both willing and able to pay for gold.

I have one family in mind now who have all amalgam fillings in teeth posterior to the canines, some with fillings on both anterior and posterior surfaces, and finished in such a manner that a V-shaped opening is left between them. Their previous Dentist was a gentleman of skill and experience in gold fillings, &c., as I have had many opportunities of proving, but as he did not use either the rubber dam, dental engine, or adhesive gold, he would or could not fill these cavities with non-adhesive gold so as to last.

Some of the fillings mentioned have fallen out after about two or three years' wear, showing unmistakable signs of decay having gone on underneath. The gold fillings have all stood intact, but they were small ones, and in easy positions to fill.

Where the amalgam fillings have come out I have replaced with adhesive gold.

I believe amalgam to be a good filling for first-rate teeth with easy cavities, but for second-, or even third-rate teeth, I think gold, and especially adhesive gold, the best.

It has been my misfortune to see front teeth having amalgam fillings in them, put there by men now holding their L.D.S. Let us hope that for the credit of the diploma they will discontinue the practice.

That gold filling is almost ignored by a large number of Dentists I can testify, as I have had recent opportunities of seeing for myself, having met with a good many who have told me they never put in a gold filling.

As it is believed to be one of the best tests of a Dentist's ability, would it not be better if more men tried to save teeth by using gold instead of so frequently using the excising forceps and inserting artificial teeth.

I am, &c.,

J. S. DICKEN, L.D.S.

Southport, Lancashire.

DISINFECTION OF INSTRUMENTS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—As so much is being said on the serious matter of inoculating syphilis by instruments, I should be glad if any of your readers would state the manner in which they disinfect their instruments, and what they use for the purpose. I have for some time been in the habit of washing mine (after every patient) in a weak solution of carbolic acid and permanganate of potass.

I am, &c.,

A. J. PRAGER, L.D.S.R.C.S.I.

City Road, N.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

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ANSWERS TO CORRESPONDENTS.

- "E. W. P."—We have not thought it necessary to notice the legal opinion you refer to because it is well known that other equally eminent authorities have come to somewhat different conclusions. We prefer to wait patiently for the final decision, and should advise you to do the same.
- "IMPRIMATUR."—Thanks for your paper, which shall appear in next issue. We fancy the "Notes" you speak of would only be published at your own risk and expense; they might be useful to others, but you must not expect any profit to yourself. At least that is our experience.
- "CORRIGENDUM."—In editorial article of January 15th, top line of last page, for "*deepest inspiration*" put "*deepest expiration*." We should have thought that the correction needed was evident from the context.

Communications have been received from Messrs. Thos. Gaddes (London), J. R. Brownlie (Glasgow), Rees Price (London), G. H. Crowther (Wakefield), A. J. Prager (London), J. S. Dicken (Southport), W. V. Ditcham (London), Jas. Hardie (Alloa), "E. W. P.," W. Willis (Halifax), Dr. Prosser James (London), &c.

BOOKS AND PAPERS RECEIVED.

'Lancet.' 'British Medical Journal.' 'Medical Times and Gazette.' 'London Medical Record.' 'Chemist and Druggist.' 'Dental Advertiser.' 'Deutsche Vierteljahrsschrift für Zahnheilkunde.' 'Glasgow Herald.' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

No. 314. LONDON, FEBRUARY 15, 1881. Vol. XXIV.

Dental Surgery and Medicine.

OBSERVATIONS ON ADMINISTERING NITROUS OXIDE GAS.

By JAMES HARDIE, Esq., Alloa.

IN the discussion on Mr. Williamson's paper on Nitrous Oxide, at the Odonto-Chirurgical Society, Edin., reference was made to patients complaining of headache after recovering consciousness. I find that the most frequent, if not the only cause, of the after headache is from the administration of the gas too soon after a meal has been taken. I usually question the patient on this point if they complain of headache, and find invariably a meal has been taken a short time previous. I never, however, had a case of vomiting, nor have I heard of any of my patients who were sick or vomited afterwards. Another point which seemed to puzzle not a few was their inability occasionally to anæsthetise patients; this, I believe, in the majority of cases, to be due to the admission of air, which most frequently enters at the side of the nose. Where any difficulty is experienced, it is best to at once to remove the face-piece and see that it be thoroughly readjusted. In the case of males, it frequently happens that the beard is sufficiently strong to prevent the entire exclusion of air. Where there is any beard or moustache, it should be always thoroughly sponged with tepid water before applying the face-piece, so as to exclude the air.

I remember an Indian officer calling to have a tooth extracted under the gas some years ago, and after giving him about ninety gallons, all the effect I made on him was to make him laugh, and each time I took off the face-piece, he said, "No, no, it won't do, I am quite sensible, but I could take it every day, it is so pleasant." I made another appointment with him, and prepared a fresh hundred gallons, with the same result. I could not understand it, and wrote to Messrs. Ash to see if there could be anything wrong with the ammonia.

They, among their suggestions as to the cause, said it was probably the beard, and sure enough it was, although it never struck me. He had a very bushy beard, through which the air permeated like a sieve.

I find also that spirits, taken before a gas operation, has a most prejudicial effect. A lady who desired to have the gas told me she had had very little sleep or nourishment for some days, and had a glass of brandy to give her courage; in about fifty seconds after the face-piece was put on, she became quite hysterical, and it was with the utmost difficulty an assistant and myself kept her in the chair. We at last allowed her to get up, and she paced the room in hysterics for some minutes. A few days ago, I had a young woman who, although she said nothing, I could not hold in the chair after I had hold of the tooth, which I, however, managed to get out. I have had other cases very similar, with both males and females, who, I have found, had taken spirits before coming, so that it would appear the gas and spirits will not mix.

I have noticed another peculiarity in people with florid complexions, that instead of becoming livid they become quite rosy red.

I find in my article on nitrous oxide in the December number, 1878, I omitted to mention at page 638, sixth line, "That the lower valve of the face-piece should be taken out if the finger is placed on the valve-pin, to save the gas by reinspiration.

I have noticed occasionally, in articles on chloroform and other anæsthetics, it has been recommended to give the patient a little brandy beforehand. I remember, in one chloroform case, where most of the teeth had to be taken out, the patient had been dosing himself with brandy to ease the pain of toothache, and it was with the utmost difficulty we got the patient under its influence, but when once over, the effect was intensely soporific. He was marched for some time about the floor, and when the effects were passed off put to bed for about an hour.

Like other peculiarities, I find that members of the same family frequently show the same dread of being operated on, and under the gas the effect produced is similar. I had an old gentleman call to have quite a loose tooth taken out. He desired the gas, as he said he had a dread of pain of any kind, and had always had chloroform previously when he had a tooth extracted, but his medical man had refused, as he was slightly paralytic in the left side. I gave it him twice before I was successful in extracting the tooth, as he threw about his hands, and was very restless both times. He told me he

was the same under the chloroform. His son called a short time after to have some roots extracted, and he objected to have them out without the gas. I tried him twice, but he was most unmanageable, so that I found it impossible to do anything. He told me afterwards that an Edinburgh Dentist had given him the gas several times with the same result.

AMALGAM *v.* GOLD.

By EIMER R. SHOWLER, Esq., L.D.S.

IN your issue for 1st January, I notice an article from Mr. Musgrave on the above, and ask your permission to add a few words on the same subject. I have lately been working in a large practice in the West of England, where the majority of the people are in somewhat humble circumstances, and where there are also a great many poor, and I have found, naturally, that most of the patients cannot afford to pay more than a very small fee for filling a tooth; and very often I have been obliged to extract teeth that otherwise might have been saved, but for the simple reason that the patient could not afford to pay for a filling. It has, therefore, been my lot to see a great many amalgam fillings in front as well as back teeth. I believe that the English practitioners who entirely overlook the art of gold filling are very few and far between. I, for one, always advocate for gold whenever I see there is a chance of getting a fair remuneration for my trouble. I should be glad to hear from other practitioners in different parts of the country what their usual fee is for a good gold filling. In the West of England I can never get more than half-a-guinea, and as the practice I speak of is within fifteen miles of a large town where there are ninety Dentists in practice, you can well imagine that I willingly make them for that fee, knowing that if I did not one of the legion in the adjacent town very soon would.

We all know that amalgam fillings in front teeth look unsightly, with the exception of small fillings on the distal surface. I know a case at the present time where the four central incisors in the upper jaw are filled in this way, and it is difficult to see that the teeth are stopped at all, as there is no discoloration; they have been stopped seventeen years, and are still intact.

Only yesterday, a man came to me to have an upper lateral filled; I found a small cavity on the distal surface, and

knowing that the central next to it had been filled twenty years with amalgam, I naturally inserted a like filling. Now, had I thought that this patient could have afforded to have a gold filling, I should of course have inserted one. Perhaps some one will suggest an oxychloride; true, but I knew too well that, had I inserted a paste filling, the patient would have returned in two years and have wanted it refilled for nil. I only cite this case as one of many of a similar nature.

I quite agree with "Fair Play," that there are practitioners who are nothing more than tooth makers, and ignore tooth saving entirely. A case came under my notice a short time ago where the six front teeth in the upper were decayed, and the patient had been to an old-established practitioner at the West End (L.D.S. Eng.), and instead of filling the teeth he had cut them off and pivoted the stumps. After a time the pivots became troublesome and the patient paid the Dentist another visit, but this time with a more serious result, as he extracted the remaining back teeth, which were also a little decayed, and now she wears a complete upper denture which might well have been avoided had the operator given his mind to "tooth saving" instead of tooth making.

Hospital Reports and Case-Book.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM JANUARY 1ST TO JANUARY 31ST, 1881.

Extractions	{ Children under 14	332
	{ Adults	549
	{ Under Nitrous Oxide	219
Gold Stoppings		107
White Foil ditto		6
Plastic ditto		388
Irregularities of the Teeth treated mechanically		38
Miscellaneous Cases		281
Advice Cases		124
Total.....		2044

R. GILES BRADSHAW,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM JANUARY 1ST TO JANUARY 31ST, 1881.

Number of Patients attended	960
Extractions { Children under 14.....	224
{ Adults.....	386
{ Under Nitrous Oxide	51
Gold Stoppings	31
Sheets of Gold used, independent of Pellets.....	31
Other Stoppings	431
Advice and Scaling	63
Irregularities of the Teeth	25
Miscellaneous.....	57
<hr/>	
Total operations	1268

R. DESMOND ASHBY,
House Surgeon.

British Journal of Dental Science.

LONDON, FEBRUARY 15, 1881.

ALEA JACTA EST. The British Dental Association has played for a big stake and has lost the game. We have for a long time disapproved of the conduct of the Association as regards its efforts to revise the Register, and we are not at all surprised at the result. We were far from thinking that no revision was necessary: it was notorious that a number of individuals to whom the Act had never been intended to apply had nevertheless been admitted to the benefits of registration. The basis on which the Act was drawn was the recognition of all existing rights, but it was never intended to confer new rights on those who had not them before. That a man who, incidentally to another business, extracted a few teeth annually, should be legally certified to be a Dentist seemed to us opposed to common sense; and with all respect for the General Medical Council and its legal advisers, we think so still. The man was not, did not consider himself to be, a Dentist before the passing of the Act,

why should the title be conferred upon him after. But the Association was not satisfied with this simple aspect of the question ; it proceeded to threaten men who were admittedly engaged in the practice of Dentistry, because they had made statements with regard to medicine, surgery, and pharmacy, which the officers of the Association chose to regard as inadmissible. The introduction of this legal quibbling appeared to us to be incompatible with the "liberal recognition of existing rights" which had been promised, and we felt it to be our duty to separate ourselves from a body which seemed disposed to attach more importance to the attainment of an object, than to the means by which this could be brought about.

We have held from the first that the interpretation put forward by the British Dental Association of Clause *c*, Section 6, of the Dentists Act could not be sustained, and we have expressed this opinion freely to numerous applicants for advice both privately and in the pages of this Journal ; and we are strongly inclined to think that had those who are responsible for the policy adopted been content to take a common sense view of the matter, the General Medical Council might have done the same. As it is the Association has been beaten at its own game of "legal opinions."

We have no wish to blame the Association unduly : the course of action of which we disapproved was not entered on without eminent legal sanction. We give elsewhere the opinion of Mr. G. A. Fitzgerald on which the Association based its action. But, as most of our readers are aware, the Dentists Act was drafted under the immediate supervision of this gentleman, and for this reason we were the more disposed to look upon his opinion with suspicion. It appeared to us that it would be difficult for a man so placed to regard his own work impartially ; that he would be specially liable to confound the real and literal meaning of the words with the meaning which he had intended them to bear. And this is exactly what seems to have occurred.

The wording of the short clause above referred to has been the chief, if not the sole, cause of the delay and uncertainty which has so long prevailed. It is to the effect that "any

person who is at the passing of this Act *bonâ fide* engaged in the practice of Dentistry or Dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy, shall be entitled to be registered under this Act." Had this sentence ended at "Dentistry or Dental surgery" all this trouble might have been avoided, for the definition of what constituted the *bonâ fide* practice of Dentistry could scarcely have given rise to much difficulty. The object which the promoters of the Act had in view was that those who practised Dentistry by itself and those who practised it in conjunction with medicine, surgery, or pharmacy respectively, should form different categories, and should be distinguished accordingly in the columns of the Register. That this was the intention is evident from what occurs in other parts of the Act, especially in Clause 6 of Section 11. Of course the *legal* practice of medicine or pharmacy was meant, but unfortunately this word was omitted, and consequently, according to counsel's opinion, the Medical Council would be compelled to insert these particulars opposite the names of all who state that they so practise, no matter whether they have any legal right to do so or not. "In conjunction with the practice" means in fact, "in conjunction with any sort of practice," including bone-setters and quacks of every sort. Now, to enable a man to declare that he was licensed by Act of Parliament to practise Dentistry with medicine or surgery when his only qualification was founded on his own statement that he had so practised, was to introduce a quasi recognition, and what would appear to the public to be an actual recognition of illegal practice, which was most undesirable. Since then no power is given to the Council to distinguish between the authorised and unauthorised practice of medicine or pharmacy, it finds itself compelled to treat this part of the clause as so much surplusage, and to omit from the Register all particulars except those relating solely to Dental practice.

The Council has also decided that the right of any person to a place on the Register can only be challenged on the ground that he was not engaged *bonâ fide* in the practice of Dentistry at the date of the passing of the Act, and apparently the majority of the Council are not disposed to define

"*bonâ fide* practice" very strictly. The Council has not, however, decided that all those now on the Register have a right to be there, but only that it has not before it sufficient evidence on which to remove the names of any of the persons objected to; and it is still open to the British Dental Association or any one else to commence proceedings anew if they think it worth their while to do so. But we have said enough for this time, and must reserve the further consideration of these important issues for another occasion.

Literary Notices and Selections.

THE BRITISH DENTAL ASSOCIATION AND THE GENERAL MEDICAL COUNCIL.

WE have hitherto refrained from noticing the legal opinion on which the Council of the British Dental Association based last year its application for the removal from the Register of the persons whose names were set out in its famous list. We felt that if we published it without comment, it would be thought that we attached an importance to it which we did not really intend. Whilst, on the other hand, it was equally difficult to express our opinion concerning it without laying ourselves open to a charge of presumption and having our motives misrepresented.

We now, however, feel at liberty to publish it, and our readers will no doubt be glad to have an opportunity of comparing it with the answers to the same questions given by Messrs. Farrer Herschell and Muir Mackenzie, which will be found at p. 170 of this number.—ED. 'B. J. D. S.'

CASE *in re* THE DENTISTS ACT, 1878. COUNSEL'S OPINION ON THE INTERPRETATION OF CERTAIN CLAUSES.

*From the Minutes of the Representative Board of the British
Dental Association.*

1 (a). A person who, being at the passing of the Act engaged in the practice of Dentistry, and also in some busi-

ness not mentioned in the Act, declared himself to have been engaged in the practice of Dentistry separately, is liable to have his name erased from the Register.

(b). A person who declared himself to be engaged in the practice of Dentistry in conjunction with Pharmacy, but whose name was not in the Chemists' and Druggists' Register, is liable to have his name erased from the Register.

2 (a). I think that an assistant in a chemist's shop, where teeth were occasionally extracted, even if registered in the Chemists' and Druggists' Register, cannot be considered as engaged in the *boná fide* practice of Dentistry, so as to entitle him to remain on the Dentists' Register.

(b). I think that the occasional performance of one class of Dental operation, such as the extraction of teeth, does not constitute *boná fide* practice of Dentistry.

(c). The *bona fides* applies equally and separately to the practice of Pharmacy, and an assistant in a chemist's shop, not registered in the Chemists' and Druggists' Register, cannot be regarded as in the *boná fide* practice of Pharmacy within the meaning of the Act.

(d). Whether a Dentist's assistant can be considered as in *boná fide* practice, so as to entitle him to be on the Register, depends on the amount and nature of the assistance furnished by him to the Dentist. The assistance must be such as to require the possession of *some* Dental skill and knowledge.

3. The name of a person can be removed from the Register at his own request, without any reason being given by him. Of course the Registrar would require a *written* request, signed by the person making it. The restoration of a name once removed is a matter for the discretion of the General Council (S. 14), after the facts of the case have been ascertained by the Standing Committee appointed under S. 15. I do not think that a person desiring to have his name removed could be legally required to make a declaration relinquishing all claim to restoration on the ground of *boná fide* practice before the passing of the Act.

4. The witness to the declaration in the Schedule to the Dentists Act is a witness merely to the signature of the declarer; but if he signed, knowing the declaration to be false or fraudulent, he would be liable to be proceeded against under S. 35.

(Signed)

G. A. R. FITZGERALD.

ON LOCAL REMEDIES IN DISEASES OF THE THROAT
AND MOUTH.

(Abstract of paper presented to the British Medical Association at the Meeting at Cambridge, 1880.)

By PROSSER JAMES, M.D.,

Lecturer on Materia Medica and Therapeutics at the London Hospital; Physician to the Hospital for Diseases of the Throat and Chest.

FIRST of all it was remarked that the buccal and faucial cavities are so freely open to inspection, that the pathology of mucous membrane is best studied in this situation, which is further well adapted for demonstrating the action of local remedies. Further, not only is the mucous surface thus accessible to local applications, but these remedies may favorably influence the deeper tissues.

The agents at our disposal may be solids, liquids, or vapours. The first are often—much too often, perhaps—resorted to in the form of caustics; but milder remedies in the solid form, chiefly in fine powder, might be more extensively employed with advantage. The last include the chief inhalations, fumigations, and perhaps sprays. The liquids give us mouth washes, gargles, douches, irrigations, sprays, and more strictly localised applications made by means of camel-hair brushes, sponge, cotton-wool, &c.

The next point remarked upon was that the continuity of the mucous membrane of the mouth and fauces accounts for the ready extension of morbid or remedial influences from one part to the other. It was shown that many cases of disease of the mucous lining of the mouth are in their incipient stages overlooked. Others are frequently seen and sometimes treated by Dentists—who would, however, do well to call in the aid of the physician. Without desiring to restrict the domain of the Dentist—especially of the Dentist who is also a surgeon—it must be stated that certain forms of disease are likely to be developed under his observation which call for the most extensive medical knowledge, and on the first indication of which the patient should be sent to a medical man, or at least a consultation demanded. There should be less hesitation about this now that Dentistry has acquired a distinct legal position as a branch of our art. Professional fellowship should be more cordially accorded to the Dentist. If he be rather careless of etiquette, his tone will only be improved by our liberality; but there is no reason to anticipate this, and the author's consultations with Dentists have been most satisfactory. On the other hand, it

may be confessed that too often medical men have neglected to study certain elementary Dental problems, and have consequently continued to ineffectually treat cases which would more advantageously have been sent to the Dentist.

A. VAPOURS.

Steam, first proposed by the author as a remedy for croup and diphtheria, has been of late years largely employed, and this simple vapour has from time immemorial been popular in bronchial affections, as well as in throat diseases. The watery vapour is also made the purveyor of other volatile remedies, both anodyne and stimulant. The vapours of ether, nitrite of amyl, and other remedies may also be used without the intervention of steam. Other dry inhalations and fumigations are also useful, and though often so employed as to extend their influence to the whole respiratory tract, they may be localised by suitable contrivances to small parts of the mucous membrane—such, *e.g.* as instruments for throwing sublimed calomel and other drugs on a small part of the mouth or throat. Sprays might perhaps be classed either with vapours or liquids. In the majority of cases their remedial value is more allied to the latter, inasmuch as while warm vapours are specially adapted for anodyne remedies, sprays are more often used for astringents and tonics. This is why the hand-ball atomiser is equal or superior to the steam spray producer.

B. LIQUIDS.

A fluid may be applied (1) momentarily, by means of glass or camel-hair brushes, or bits of cotton wool or of sponge. This method is suitable for applying by the medical man's hand powerful astringents, stimulants, and sometimes escharotics or any substances which cannot be properly entrusted to the patient. (2) When a less immediate or a more prolonged action is desired, we resort to gargles and mouth-washes. The use of these can be repeated at frequent intervals, so that the action of the remedy is within the control of the patient. Lotions and fomentations of this kind have therefore always maintained their position in practice. Antiseptics, disinfectants, and astringents are frequently useful in this form; so alkalies, salines, and other liquids applied cold, have an excellent influence in certain states of the mucous surface. The use of such cold applications is allied to that of lotions in other parts, while warm or hot mouth-washes and gargles represent fomentations elsewhere. These last are most useful when of an anodyne character, though it is well to remember that in some cases of acute inflammation they can-

not be of much service, on account of the pain caused by movement of the parts.

3. *Douches and Irrigations* may also be applied in these cavities. In the mouth a very simple irrigator will suffice; and here is one for the pharynx and another for the nares, which the author has had in use for many years.

4. *Linctus*.—In order to somewhat prolong the action of these fluids, they may be rendered thicker and more glutinous by sugar and other additions. We then have the linctus, loch or lohoch, called also eclegma, eclectic, ecleitos, elegma, and illinctus; various terms derived from *εκλειχω*. Various syrups and mucilages may be used for the same qualities, or may enter into the composition of the linctus. Glycerine, from its slowness to evaporate, may be used to attain the same end, and is indeed rather too popular, for since the glycerine of tannin and borax were introduced to the pharmacopœia, their routine use has become quite an abuse.

C. SOLIDS.

As sprays took an intermediate place between vapours and liquids, so between these and solids we might place—

1. *Confections or electuaries*, in which we have a tenacious semi-solid substance, which may be slowly dissolved in the mouth, and thus the local action of its ingredients prolonged; though these preparations are also used as vehicles for systemic remedies.

2. *Lozenges*.—Completely solid, and therefore slower of solution, the various forms of lozenge enable the medicament to exercise a much more prolonged influence in the mouth and fauces, and have always been popular remedies. The Greek hypoglottides are represented in our lozenges. Although the London and Dublin pharmacopœias omitted them, the Edinburgh retained them, and the British has restored them. In doing so, however, the lozenge has been made as much use of as a vehicle as for local effects. Thus some officinal lozenges (as morphia and iron) are chiefly to be regarded as general remedies, though others (as tannin and chlorate of potash) are valuable for their topical influence. It is obvious that the two qualities may often be combined.

For special topical use, lozenges should possess the following qualities: 1. They should dissolve slowly in the mouth, so that the resulting solution of the medicament may remain as long as possible in contact with the mucous membrane; 2. They should possess a certain degree of softness, so as not to hurt the diseased surface mechanically; 3. For the same reason, their shape should be without corners; 4. Their flavour should be agreeable, or as little distasteful as pos-

sible; 5. They should keep without change for an indefinite period, as they cannot be advantageously made in small quantities.

The lozenges of the B.P. are most defective, on account of their hardness. They irritate the mucous surface; and the sharp corners of some shapes in common use, or of the broken pieces of others, may enlarge ulcers, tear congested membrane, or do other injury. Of course, when used for their constitutional effect, these objections may scarcely apply. A softer consistence has been attained by the employment of fruit-paste—as in the favorite black current lozenges; and this substance has been more extensively used of late years. Extract of liquorice, as in “Pontefract cakes” and gelatine, have also been utilised. A more recent innovation is the effervescent base introduced by Mr. Cooper, which, for some purposes, is of special value. The French, so famous for all kinds of confectionary, have given us the *pâte de Guimauve*; but the defect of this is that it does not keep well. We owe to them also our best jujubes, a sweetmeat first made with the juice of the *Rhamnus zizyphus*, but now never containing that agreeable fruit. Experimental experience, extending over more than a quarter of a century, leads me to conclude that a *pâte de jujube* of the best French method of manufacture will be found most generally useful as a base. It fulfils all the indications required; it can be variously flavoured and coloured, divided into lozenges of any size or shape, and medicated with the most suitable remedies. It does not excite nausea or cause indigestion, and does not change too much after months of exposure. It is, therefore, adapted for lozenges prescribed for their topical influence, and is equally available for those given for their effects on the system.

Lozenges were more extensively used than could have been supposed, when the London and Dublin pharmacopœias rejected them. Every one who remembers that time will know that, in spite of that discouragement, every large pharmacy was obliged to keep a considerable number. Rhatany, an excellent astringent, now extensively prescribed for local purposes, is an old remedy revived. So with cubeb lozenges, which have lately been forced into extensive sale by a vendor who vaunts them as “bronchial troches.” But this is according to the common practice of quacks, who take some of our tried formulæ and advertise them as their own discoveries. We have, in fact, few new lozenges. Red gum has been introduced; so, too, has carbolic acid; chlorodyne can scarcely be counted, being only morphia disguised; superior glycerine-jujubes may be had at any leading pharmacy, or of inferior quality as an advertised panacea. Th

lozenges comprised in this long list might be classified according to their therapeutical uses—*e.g.* astringents, demulcents, sedatives, special stimulants, &c. It will suffice, however, to refer to the specimens exhibited at the annual museum at Cambridge. They were made from the writer's formulæ by Messrs. Allen and Hanburys, who were applied to as the owners of the latest patent in this kind of manufacture, and have so far carried out his views. These specimens are therefore offered as a distinct advance in medicated lozenges.

As the words *trochisci* and *tabellæ* have become associated with the harder lozenges, as jujubes seem to savour too much of sweetmeats, and as these are distinctly medicinal agents, it is proposed to call them pastils, an old English word more familiar in the French *pastilles* and derived from the Latin *pastillus*, which was used by Celsus for such a purpose; *pastilli* will, therefore, be an appropriate name in prescriptions.

Doses and Therapeutical Uses.—With regard to dosage, those pastilles which are intended to replace the B.P. lozenges have been made of similar strength, as it was considered advisable not to burden the prescriber's memory too much. This is specially the case with the pastilles of morphia, of morphia and ipecacuanha, and of opium; in each of these the pastille may be regarded as an agreeable substitute for the lozenge. So, too, with the simple ipecacuanha pastille, which will be found much more popular with children than the lozenge. The same remark applies to *pastilli ferri*. Each *pastillus aconiti* may be considered equivalent to half a minim of B.P. tincture, and prescribed accordingly. The *pastillus expectorans*, or *morphiæ et ipecacuanhæ compositus*, is a combination of the simple one with other expectorants, and will be found most serviceable in bronchitis, chronic coughs, &c. The chlorate of potash pastilles are not so strong as the lozenges, and may be taken in twice the usual doses; they are, however, very efficacious, and the disagreeable flavour is so successfully concealed that few can detect it. If large quantities are needed other modes of administration may be tried—such, *e.g.* as the compressed tablets. The *pastillus sodæ chloratis* I introduced as an efficacious and pleasant substitute for the potash salt. The lithia pastille contains a grain of the carbonate, and is valuable for both its local and remote effects. The benzoated pastille will be found the most agreeable of all mild voice lozenges, and may be taken shortly before speaking, reading, singing, preaching, &c., to give tone to the vocal apparatus. In obstinate or chronic cases, the camphorated pastille is a still more powerful voice lozenge, but, unfortunately, its flavour is not nearly

so agreeable. This is, in fact, the only one of the series that can be considered unpalatable.

3. *Powders*.—Solids reduced to fine powder may be applied to the mouth and throat by means of an insufflator. A tube of convenient shape, with a common puff-ball attached, is an efficient instrument, only requiring a little management. Such a tube may be of silver, vulcanite or glass, according to its destined use. A little more complicated contrivance is the wash-bottle we have all used in the laboratory. Any one who can bend a glass tube over a lamp can himself make such an instrument of any size he likes. A one-ounce or two-ounce phial will be convenient, and the distal end of the tube should be drawn to a smooth point. A puff-ball, or the bellows of the atomiser, completes the apparatus, and when a little powder is put into the bottle it affords simple means of projecting some of the drug on any point of the surface. Calomel, chlorate of potash, bismuth, borax, alum, and many other powders may be thus employed. Excellent results are obtainable from the use of iodoform by this method. This and other drugs are often mixed with inert powders with advantages. Starch answers well, as it adheres easily to the moist surface. The author is very desirous of urging the value of iodoform by this method. He believes he was the first to employ it thus, and his experience proves it to be most valuable. Those who have watched the remarkable influence of this drug when dusted on other surfaces will not be surprised at its effect here. In regard to drugs used in this way, it must not be forgotten that the remedy finds its way to the stomach, and therefore its action on that organ and on the system must not be forgotten. When it is desirable to apply powders to the interior of the larynx a well-made insufflator is convenient.

4. *Caustics*.—Sometimes it is desirable to use solid caustics in the mouth or throat. Here aluminium wire or glass rod, with a little of the caustic fused on it, may be used. An instrument of this kind is much safer than ordinary caustic holders, which have given rise to accidents, from the caustic breaking off and being swallowed. It should be added that caustics are often resorted to unnecessarily, and therefore not seldom injuriously.—*Specialist*.

Dental News and Critical Reports.

GENERAL MEDICAL COUNCIL.

THE special session of the Medical Council for the purpose of forwarding the "Dental business," of which we gave notice in our last issue, was opened on the 3rd inst. with the following address by the President :

"Gentlemen,—I cannot but regret that it has become my duty to summon the Council at this inclement season for the special purpose of business connected with the Dentists' Act, 1878. It is to be noted that this is the first occasion on which the Council has been called together for this new duty imposed upon it by Parliament. The reason for your meeting depends on the fact that a question has been raised as to the accuracy of the Dentists' Register in over 500 cases. It seemed improper to delay to a later period of the year, when the Council would meet for its ordinary business, the publication of the Dentists' Register for 1881 in a corrected form.

"On July 15th, 1880, memorials from the Association of Surgeons Practising Dental Surgery, from the British Dental Association, and a letter from the Honorary Secretary of the British Dental Association, stating the grounds on which it was considered that a large number of persons should have their names erased from the Dentists' Register, were referred to the Dental Committee by the General Medical Council, that they might ascertain the facts of these several cases named in such memorials and letter. At meetings of the Dental Committee, held since that period, after prolonged deliberations with the solicitor to the Council, reports have been drawn up, which will now be presented to you.

"It is hardly necessary to remark that in the preparation of these reports every care has been taken to ascertain the facts; and opinions of counsel were obtained on such points as appeared to be open to question. The Council is now called upon to decide whether, upon the facts stated in these reports—which facts, under Clause 15 of the Act, are conclusive for the purpose of the exercise by the Council of its powers under the Act—all or any of the persons whose cases are reported upon should, or should not, be erased from the

Dentists' Register. One person, on whose case the General Medical Council has to decide, is summoned to appear this day at four o'clock.

"It is not my intention to bring before the Council any business other than that for which it was my duty to summon it; and, under the standing orders, other business can be brought before it only by resolution of the Council."

The President concluded by speaking in feeling terms of the loss which the Council had sustained by the death of Dr. Andrew Wood, one of its original members, and Chairman of its Business Committee.

On the conclusion of the President's address, Sir WM. GULL moved a resolution of condolence on the part of the Council with the widow and family of the late Dr. Andrew Wood. This was seconded by Sir JAMES PAGET, and unanimously agreed to.

Dr. HUMPHRY then moved the election of the Business Committee, consisting of Dr. Pitman, Dr. Haldane, and Dr. Aquilla Smith, Dr. Pitman acting as Chairman.

Mr. TEALE seconded the resolution, and it was at once agreed to.

Dr. QUAIN then proposed, and Dr. AQUILLA SMITH seconded, a motion for the appointment of an Executive Committee, and the following members were selected by ballot: Sir James Paget, Dr. Pitman, Dr. Humphrey, Dr. Haldane, Dr. Aquilla Smith, and Dr. Quain.

The Council then proceeded to deal with the special business of the session; the report of the Dental Committee being formally received, and ordered to be entered on the minutes.

This document, which if printed *in extenso* would occupy eighteen or twenty pages of this Journal, deals with the list which was submitted to the Council at its last session by the British Dental Association and was referred for consideration to the Dental Committee. It contains the names of several hundred persons who were stated to have "illegally declared themselves to be engaged in the *bonâ fide* practice of Dentistry with Pharmacy," &c. The names of the individuals thus objected to are, in this report, carefully classified and arranged in different categories. Thus, the Committee state that, having considered the corrected list of persons said to have been improperly placed on the Register, which had been submitted to it by the General Council for inquiry as to the facts of the respective cases, they find that—

(1) Eight of these individuals were, at the time of making their declaration, *bonâ fide* practising as Dentists separately,

seven of them being incorrectly entered on the Register as in the practice of Dentistry "with Pharmacy."

(2) That 116 were registered on their declaration that they were *bonâ fide* engaged in the practice of Dentistry in connection with Pharmacy, though their names are not to be found in the Pharmaceutical Register or in the Register of Chemists and Druggists.

On application being duly made to these persons as to the grounds on which they had described themselves as practising Dentistry in connection with Pharmacy, they have given explanations which show that they were Managers, Assistants, or Apprentices to Chemists and Druggists, and considered that in that character they were practising Pharmacy; and the Committee have no reason to doubt but that this was done from a misconception of the meaning of the Act, and without any fraudulent intention:

(3) Letters were sent to fourteen others whose names did not appear in the Register of Pharmaceutical Chemists or in the Register of Chemists and Druggists, but were returned through the Post Office marked "dead" or "gone away."

(4) Then follow the particulars of twenty special cases stated at length. The following are among them:

Horace A. Costerton was practising Dentistry in his own name, and Pharmacy under the trade title of Headland & Co. Owns a Pharmacy (but his name does not appear in it), which is still carried on under the original title of Headland & Co. Is legally qualified to do so, having passed Pharmaceutical Examination in 1873, and registered for that and following years. Name omitted from Chemists' Register for last three years, in consequence of neglect to give notice of change of residence, but it will be inserted in next issue. Is and was for some years before passing of the Dentists Act in genuine practice as a Dentist in his own name, and considers he should have been registered as practising Dentistry separately, and not in conjunction with Pharmacy (having always kept practice and business as distinct as possible), though Dentists' Registrar appears to think differently. Is now in the Register of Chemists and Druggists.

George Osmond Feaver was apprenticed to a Chemist and Dentist. In March, 1874, purchased his present house and premises, to which is attached a Chemist's business, which he lets to a Registered Chemist, and such of his time as is not required in his Dental practice is devoted to the supervision of the Chemist's business. Did not desire to imply that he was a Chemist or Druggist, but merely that he was in practice as a Dentist before 22nd July, 1878, and that he had no more to do with Pharmacy than above described.

Elizabeth Laird was not aware that there was any mention, in the form signed, that her name must appear in the Chemists' and Druggists' Register to entitle her to registration under the Dentists Act. Was carrying on the Pharmacy branch of her late husband's business as trustee of his estate with the knowledge of the Pharmaceutical Society, the bye-laws of that Society allowing a trustee to carry on a business with the aid of a qualified assistant. As she was acting in a perfectly legal manner, she does not think she was making a false statement when she said she was connected with Pharmacy. She is willing to answer any questions, and, if compelled, will take legal advice.

George Murrell is a Surgical and Mechanical Dentist of upwards of fifteen years standing, carrying on, in addition, the business of a Homœopathic Chemist. Not in Register of Pharmaceutical Chemists or Register of Chemists and Druggists.

Henry Pearson in July, 1878, was manager of a branch business at Nottingham belonging to a Chemist and Druggist whose chief business was carried on in the same town. At the same time was practising Dentistry on his own account, and at one side of the shop door appeared a brass plate, bearing the words "H. PEARSON, Dentist." In June, 1879, passed examination and obtained certificate from Pharmaceutical Society, and the next month commenced business on his own account. Feels confident he has a right to be registered as a Dentist. Registered 19th June, 1879, and is still in Register of Chemists and Druggists.

Richard Vicary Turner. At passing of the Act, and for several years before as well as since, was *bonâ fide* engaged in the practice of Dentistry with Pharmacy at the Exeter Dispensary, served a legal apprenticeship to a Chemist and Druggist, and since then has been constantly practising Dentistry and Pharmacy at the Exeter Dispensary. Not in Register of Pharmaceutical Chemists or Register of Chemists and Druggists.

(5) That the names of sixty-eight individuals have been removed from the Register at their own formal request, and that about a dozen others have also declared their intention of withdrawing their names, but have not yet made application in due form.

(6) That in two cases the particulars were errors in copying the original declaration; these have been corrected.

(7) Twenty-two individuals state that they are already on the Chemists' or Pharmaceutical Registers, though with some inaccuracy as regards name or address, or that they have a right to be so entered.

(8) Two have been ascertained to be legally qualified medical practitioners.

(9) Sixteen were assistants to surgeons or students in medicines ; they made the statement that they were engaged in the practice of Dentistry in connection with pharmacy without any fraudulent intent.

(10) Seven were in *bonâ fide* practice of Dentistry, "with pharmacy" being added through a misapprehension.

(11) In four other cases the words "with Pharmacy" has been removed from the Register on formal application being made.

(12) The names of ten were found to be on the Irish Pharmaceutical Register.

(13 and 14) One individual was found to be of unsound mind, and another was a veterinary surgeon, who, in his reply to the letter addressed to him, says nothing about practising Dentistry.

(15) Four more exceptional cases relating to the position under the Dentists Act of Chemist-Dentists resident abroad, and in the Channel Islands and Isle of Man, where the Pharmacy Act is not in force ; facts stated at length.

(16) A letter, in the subjoined form, was sent to eighty persons to their latest communicated addresses, but no answer has been received from any one of them :

66, Lincoln's Inn Fields, London, W.C. ;

August, 1880.

SIR,—It having been represented to the General Medical Council that the entry of your name on the Dentists' Register has been "incorrectly or fraudulently" made on a declaration signed by you that you were *bonâ fide* engaged in the practice of Dentistry with Pharmacy before the 22nd day of July, 1878, the General Medical Council has referred your case to the Committee appointed under the 15th section of the Dentists Act, 1878, to ascertain the facts. By the same section, the report of such committee will be conclusive as to the facts for the purpose of the exercise of the power given to the General Medical Council of erasing a name or an entry from the Dentists' Register.

The Committee has met, and, on inquiry, finds that your name, at the time of your making your declaration for registry under the Dentists Act, was not on the Register of Pharmaceutical Chemists or Chemists and Druggists, and it will be their duty to report that fact to the General Medical Council. As, however, the facts when found will be conclusive, the Committee think it only fair that, before coming to any decision, you should be invited to make any explanation in writing you may think necessary or desirable ; or if you

should wish to state anything beyond such explanation, the Committee will appoint a time at which you may attend and be heard.

You will clearly understand that the Committee deals only with the facts of the case. The judgment on these facts rests with the General Medical Council, before whom you will have the opportunity of being heard upon the questions of law applicable to your case.

Your answer should be addressed to us.

We are, Sir,

Your obedient servants,

FARRER, OUVRY & Co.

SOLICITORS to the GENERAL MEDICAL COUNCIL.

The report concludes with the following particulars respecting persons who practise as Dentists in conjunction with hair-cutting and shaving, &c., and with a statement of the case of John Hamilton, of Tavistock Street, W.C.

Christian Friedrich Wilhelm Ackermann, of No. 88, Victoria Dock Road, Canning Town, was summoned to appear and did appear before this Council on the 29th day of October last, when, on examination, it appeared:—That he was a native of Brandenburg, in Germany. Was apprenticed to learn hairdressing in his own country, where they always learn Dentistry and dressing in a general way, taking blood, putting leeches on, and extracting teeth. After apprenticeship, served three years in the German Army as Dresser in the Hospital. Produced his testimonials. Now carries on the business of a hairdresser and Dentist at the above address, and has been there five years. Was two years previously in a situation in London. Admitted ignorance of the anatomy of the mouth. Does nothing but extract teeth. Extracted last year 612 teeth, the year before something over 500. Wife has a tobacco counter in the shop. Has his name as “Registered Dentist” painted on a tablet outside his shop window.

August Leopold, of No. 65, Bunhill Row, was also summoned to appear and did appear before this Committee on the same day, when, on examination, it appeared:—That he was a native of Germany, where he served his apprenticeship to his father as a barber. Produced certificate of apprenticeship, showing that he had also learnt Dentistry, Cupping, and Bleeding, also learnt to set a broken leg or arm, and attended the Hospitals in Germany. Now carries on the business of a hairdresser and Dentist at the above address, and has been there eleven years. Does nothing

but extract, scrape, and stop with india rubber or gutta percha—no artificial or mechanical work. Admitted his ignorance of the anatomy of the mouth. Extracted between 300 and 400 teeth last year. Has a tablet suspended outside his shop, on which is painted “A. Leopold, Dentist, Registered by Act of Parliament.”

The shop of *Alexander Schocke*, in the City Road, being shut up, no summons could be served upon him. There is another shop stated to belong to his son in the East Road, close by, in the window of which Schocke's Certificate was exhibited, but it has now been removed. A short time back there was a notice up at the shop in the City Road, that the business was removed to the shop in the East Road. (See Minutes, vol. xvii, p. 251, Clause 3.)

John Hamilton, of No. 7, Tavistock Street, Bedford Square, was duly summoned to appear before this Committee on the 29th day of October last, but did not appear. This person was registered as a Dentist on the 31st December, 1878, in respect of the Qualifications of being “In practice with Pharmacy before July 22nd, 1878,” and on April 17th, 1879, the additional Qualification of “Licentiate in Dental Surgery of the Royal College of Surgeons, Ireland, 1879,” was added thereto. The said John Hamilton is in the Register of Chemists and Druggists. By the Report of this Committee of July 16th, 1880 (Minutes, vol. xvii, p. 134), it appears that the name of the said John Hamilton has been duly removed from the List of Dental Licentiates of the Royal College of Surgeons of Ireland. That the General Medical Council has accordingly erased that Qualification from the Dentists' Register. By an official communication from the Royal College of Surgeons of Ireland to the Medical Registrar (vol. xvii, pp. 131-133) it appears that the name of the said John Hamilton was so removed by reason of his being the Author of the following pamphlets, the authorship of which he acknowledged, viz.:—1. ‘Woman and her Diseases—dedicated to Maid, Wife, and Mother;’ 2. ‘Youth, Manhood, and Old Age;’ 3. ‘How to ensure a Long and Healthy Life;’ 4. ‘Nervous Debility.’ These pamphlets, and also another entitled ‘Case-Book,’ have been submitted to this Committee, and are by the Committee submitted to the Council. The Committee find that the said John Hamilton is the author of these works, and that they are publicly distributed in the streets of London, or sold at the shop of the said John Hamilton, No. 404, Oxford Street, W.

The following cases, with Counsel's opinion thereon, were then read:

I. CASE AND JOINT OPINION OF THE SOLICITOR-GENERAL
AND MR. F. VAUGHAN HAWKINS.

The General Medical Council—Dentists Act.

Counsel will please see copy of the Dentists Act (1878).

The carrying out of this Act, it will be seen, is entrusted to the General Medical Council, a body created by the Medical Act (1858).

By Section 11 a Register of Dentists is established.

Sections 12, 13, 14, 15, deal with erasures from and restorations to the Dentists' Register.

Section 12 gives certain powers to the General Registrar to alter names and addresses, to erase the names of deceased practitioners, and to erase with consent the names of persons who have ceased to practise, or who, not answering letters from the Registrar, shall be deemed to have ceased to practise.

By Section 13 the General Council shall cause to be erased from the Dentists' Register any entry which has been fraudulently or incorrectly made, and of persons convicted or guilty of infamous or disgraceful conduct in a professional respect.

Section 14 provides for the restoration of names to the Dentists' Register after having been struck off.

Section 15—on which the questions whereon your opinion is desired mainly arise—provides that the General Council shall, for the purpose of exercising *in any case* the powers of erasing from, and of restoring to, the Dentists' Register the name of a person or an entry, ascertain the facts of the case by a Committee of their own body, not exceeding five in number, of whom the quorum shall not be less than three, and a Report of the Committee shall be conclusive as to the facts for the purpose of the exercise of the said powers by the General Council. Such Committee is always to be maintained, and the Committee has power to regulate its Meetings, &c.

The Dental Committee has been duly appointed.

More than 5000 names have been entered on the Dentists' Register and, as might be expected, questions have arisen as to the Qualification of some of them. The several Qualifications are defined in Section 6 of the Act, and the questions arise on the following Clause (C) of that Section:

“Is at the passing of this Act *bonâ fide* engaged in the practice of Dentistry or Dental Surgery, either separately or in conjunction with the practice of Medicine, Surgery, or Pharmacy.”

It will be observed that the form of application for Registration given in the Schedule to the Act does not follow Sec-

tion 6, that is to say, it does not purport to distinguish between persons practising Dentistry separately and persons practising Dentistry in conjunction with Medicine, Surgery, or Pharmacy. The General Medical Council, therefore, availing themselves of the words "or to the like effect," in Section 6, issued an altered form, a copy whereof is printed on page 23 of the published Dentists' Register for 1879.

This form has been universally adopted by applicants. Several hundred gentlemen have filled in the form, and have been registered as practising Dentistry with Pharmacy. Some have stated themselves to be practising Dentistry in conjunction with some trade, such as a Jeweller, Hairdresser, &c., but these have not been registered.

The first question which arises is, has the Dental Committee power in itself to initiate inquiry as to the facts of any case that may be brought to its knowledge, or must the case be first referred to the Committee by the General Council.

The General Council, as a rule, meets only once in a year and, when it is not sitting, its duties, so far as they can be delegated, are performed by an Executive Committee. (See Medical Act, Section 9.)

The Council, however, has been advised that it cannot delegate to the Executive Committee any duty which is in its nature Judicial, and the question is whether the initiating any proceedings having for their object the removal of a name or qualification from the Dentists' Register is a Judicial act which the Council cannot delegate.

By the Pharmacy Act any practice of Pharmacy by persons not registered under that Act is made illegal. (Section 1.)

Several hundred persons who have registered as practising Dentistry with Pharmacy were not at the time on the Pharmaceutical Register.

In ascertaining the facts it may be suggested, that it is the duty of the Dental Committee to give to the person whose case is under consideration the opportunity of being heard. Although the Committee have no power to decide as to striking a name off the Dentists' Register, yet, as their statement as to the facts is conclusive on the General Council, with whom the decision rests, it may be said to be unfair on the person whose interest is affected that the facts should be found in his absence, so that, before the General Council, he can only argue on such facts, without being entitled to offer evidence to controvert them.

The questions upon which your opinion is required are as follows :

Questions.

1. Must any proceedings to erase a name or qualification from the Dentists' Register, or to restore such thereto, be initiated by the General Medical Council?

2. Can the General Council delegate either to the Executive Committee under the Medical Act, or to the Dental Committee under the Dentists Act, a general power of initiating proceedings?

3. Has the Dental Committee under the Act any power to originate proceedings?

4. Is the Dental Committee bound to hear the party interested before finding the facts?

5. Where a person has procured his name to be put on the Dentists' Register as practising Dentistry separately, but who, in fact, carries on some other trade, as a jeweller, hairdresser, &c., can the General Council remove his name from the Register?

Opinion.

1 & 2. We think that the power of initiating proceedings is vested in the General Medical Council, but that the Council may properly delegate to the Executive Committee, under the Medical Act, the power of receiving applications to the General Council, and of referring them to the Dental Committee under Section 15 of the Dentists Act, to investigate and report on the facts of the case, for the purpose of the matter being afterwards brought before the General Council.

3. We think the Dental Committee cannot itself originate proceedings.

4. We think the Dental Committee ought, before finding the facts, to give the party interested the opportunity of offering any explanations, and of being heard, if he desires it.

5. We think that the name of a person cannot be removed from the Dentists' Register solely on the ground that he carries on some other trade, though the fact of his doing so might be material in considering whether he was *bonâ fide* engaged in the practice of Dentistry at the passing of the Act.

FARRER HERSCHELL.

F. VAUGHAN HAWKINS.

Temple, August 6th, 1880.

II. CASE AND JOINT OPINION OF THE SOLICITOR-GENERAL AND MR. MUIR MACKENZIE.

The General Medical Council—Dentists Act.

The General Medical Council have carried out the Registration of Dentists in accordance with what they believed to be the meaning of the Act. Objections, however, have been raised which apply to the Registration of persons who were registered on their Declaration of having been in practice prior to the passing of the Act. These objections are founded more especially on the interpretation to be placed on Clause (C) of Section 6 of the Dentists Act.

Counsel are requested to advise the General Medical Council in reference to this Section of the Act.

Questions.

1. What is the construction to be put upon the words "*bonâ fide* engaged in the practice of Dentistry or Dental Surgery, either separately or in conjunction with the practice of Medicine, Surgery, or Pharmacy?"

A. Do such words mean that a duly qualified Dentist must be actually in business on his own account, or could a person otherwise duly qualified, and discharging all the duties of a Dentist, but acting as Assistant to another, be said to be *bonâ fide* engaged

Opinion.

1. We are of opinion that the words "*bonâ fide* engaged in the practice of Dentistry or Dental Surgery, either separately or in conjunction with the practice of Medicine, Surgery, or Pharmacy," have no reference to any legal Qualifications to practice Medicine, Surgery, or Pharmacy. They are simply intended to indicate that if the person seeking registration is qualified to be registered by reason of his being *bonâ fide* in practice as a Dentist, he is to be none the less so entitled because that is not his exclusive occupation, but is only carried on by him in conjunction with the practice of Medicine, Surgery, or Pharmacy.

A. We are of opinion that a duly qualified Dentist need not necessarily be in business on his own account. If a person is discharging the duties of a Dentist, and really practising as such, he is not disqualified from registration merely because he is acting

Questions.

in the practice of Dentistry?

B. Could a person competent of himself and duly qualified to practice Medicine or Surgery with Dentistry, or to practise as a Chemist and Druggist and Dentist, but whose name is not on the Medical Register nor on the Register of Pharmaceutical Chemists, nor of Chemists and Druggists, be said to be *bonâ fide* engaged in the practice of Dentistry in conjunction with either Medicine, Surgery, or Pharmacy?

C. Assuming that a person qualified as in the preceding Clause can be registered in the form mentioned, will such person be disqualified from registration if acting as an Assistant only?

D. Can Apprentices to Chemists practising also Dentistry claim to be registered under the Dentists Act as *bonâ fide* practising Dentistry in conjunction with Pharmacy?

E. Can a person duly

Opinion.

as Assistant to another. But he would be so if his duties consisted merely in rendering assistance to his employer, and not in the independent performance of Dental operations.

B. We are of opinion that the question whether the name of a Dentist seeking to be registered in conjunction with Medicine, Surgery, or Pharmacy, is or is not on the Medical Register or the Pharmaceutical Register is quite immaterial. The Practitioner in Dentistry is to be registered in respect of his Dental Qualifications only, and the Council need not inquire as to his right to practise Medicine, Surgery, or Pharmacy.

C. The above answer applies to this question. It is immaterial whether the person seeking registration in conjunction with Medicine, &c., is an Assistant or not, provided he possesses the requisite Dental Qualifications.

D. We think that Apprentices to Chemists practising Dentistry cannot claim to be registered as *bonâ fide* practising Dentistry in conjunction with Pharmacy. The 37th Section provides for the registration of Apprentices and Students in certain specified cases, but except in the cases provided for in that Section we do not think that Apprentices can claim registration.

E. We think it is im-

Questions.

qualified to practise Dentistry claim to be registered in conjunction with Pharmacy on the ground of his practising some form of Pharmacy, such as Homœopathic or Veterinary Pharmacy?

2. Much misconception having arisen, on the part of persons applying to be registered under Clause (C) of Section 6 of the Dentists Act, as to the interpretation to be put on the words of that Clause, and application having been made to the General Medical Council to strike off the Dentists' Register the names of persons stated to have made false declarations in connection therewith, Counsel are requested to advise on the following questions:

A. Whether a person can claim to be registered on filling up the Declaration as printed in the Schedule to the Dentists Act, and nothing more?

B. Whether the General Medical Council can, at the request of persons now registered, omit from the Dentists' Register the words "with Pharmacy," or any additional Qualification that may have been entered on the Register, if the Council be satisfied

Opinion.

material what form of Pharmacy a person practises, provided he satisfies the Dental qualifications necessary for registration.

A. We are of opinion that a person can claim to be registered under Clause (C) of Section 6 on signing, as prescribed in Section 7, the Declaration in the Schedule to the Act. The Registrar may, if he thinks fit, require the Declaration to be affirmed by a Statutory Declaration, as provided by Section 7, but nothing more can be required.

B. The General Medical Council can, in our opinion, omit from the Dentists' Register the words "with Pharmacy," or any like words, in every case in which they think proper to do so. Such words are, in our opinion, superfluous, and should not have

Questions.

that the request for insertion has been made through inadvertence or misconception?

C. Can the Council require proof to be furnished of any additional Qualification required to be registered, such as the production of any Diploma, Degree, or Licence of any Medical or Surgical Body, College, or Institution?

D. In the absence of such evidence has the General Medical Council power to remove the words "in conjunction with Medicine," &c., from the Dentists' Register?

Opinion.

been placed on the Register at all. The Register should, in our opinion, contain the names of the Practitioners, with any Dental Diplomas or Qualifications to which they may be entitled, but should not contain any reference to their Qualifications or practice either in Medicine, Surgery, or Pharmacy.

C. We think that the only additional Qualifications which should appear on the Register are those which express or imply fitness to practise Dentistry (Section 11, Clauses 2 and 6). If a Candidate for registration desires to have such additional Qualifications registered, we think that the Council can certainly require proof of such Qualifications by the production of the necessary Diploma, Degree, or Licence.

D. We have already said that we think that the Council have full power to remove from the Register the words "in conjunction with Medicine." We think further that in any case in which the Register contains incorrect statements of a Dentist's Qualifications, the incorrect statement may, under Section 13, be erased.

FARRER HERSCHELL.

MONTAGUE MUIR MACKENZIE.

Temple, December 14, 1880.

Mr. SIMON asked whether these opinions should be made public?

Mr. OUVRY (Solicitor to the Council) said he saw no ob-

jection to their publication : they were very clear and decided, and were given upon matters affecting public interest.

On the motion of Dr. AQUILLA SMITH it was resolved that the cases and opinions be received and entered on the minutes, together with the following explanatory remarks drawn up by Mr. Ouvry :

“ These Reports deal solely with facts, and the finding of the Committee as to such facts is, by the Dentists’ Act, conclusive on the General Council.

“ The General Council has therefore to consider whether the facts so found call upon the Council in any of the cases under consideration, either

“ (1) To remove the names from the Dentists’ Register ;
or,

“ (2) To amend the entries in the Register with respect to such names.

“ The great majority of the cases included in these Reports are those in which persons are registered on declarations made by them that they were practising Dentistry with Pharmacy, or with Medicine or Surgery, and in each and every case the facts are found by the Dental Committee. A distinction is made between those cases wherein the persons are either on the Pharmaceutical Register or on the Register of Chemists and Druggists, and the cases of those whose names do not appear in such Registers, but who still practise Pharmacy in some form or other.

“ The Dental Committee find no fraud in any of these cases.

“ The Council will therefore have to consider whether, in the absence of fraud, the names of such persons should be struck off the Register, even if the Council should

“ (1) Consider that such persons had inaccurately described themselves as practising Pharmacy, Medicine, or Surgery ; or,

“ (2) Assuming it to find that such inaccuracy existed, should amend the Register by striking out therefrom the word ‘ with Pharmacy,’ ‘ with Medicine,’ or ‘ with Surgery,’ as the case may be.

“ In determining these questions, the opinion of Counsel has an important bearing.

“ It will be seen that Counsel express the opinion that the additional words above referred to are superfluous, and should have been placed on the Register at all ; and, further, the Council has power to amend the Register by striking out such superfluous words. In fact, the opinion is that the Dentists’ Register should contain the names of the practitioners, with any Dental Diplomas or Qualifications to which

they may be entitled, but should not contain any reference to other Qualifications or practice in either Medicine, Surgery, or Pharmacy; and that whether the name of a Dentist seeking to be registered in conjunction with Medicine, Surgery, or Pharmacy, is or is not on the Medical, Pharmaceutical, or Chemists and Druggists' Register, is quite immaterial. The practitioner in Dentistry is to be registered in respect of his Dental Qualifications only, and the Council need not inquire as to his right to practise Medicine, Surgery, or Pharmacy.

“It is further advised by Counsel that a duly qualified Dentist need not necessarily be in business on his own account, and that if a person is discharging the duties of a Dentist, and really practising as such, he is not disqualified from registration merely because he is acting as assistant to another; but he would be so if his duties consisted merely in rendering assistance to his employer, and not in the independent performance of Dental operations. This opinion of Counsel on these several points may probably lead the Council to consider whether, going beyond the names included in the Report of the DENTAL COMMITTEE, the whole Register does not require to be amended, by striking out all reference to Pharmacy, Medicine, or Surgery, allowing only the Dental Qualification to remain.

“There are two cases* which involve the question whether persons are entitled to be registered where they practise a trade in conjunction with Dentistry. The opinion of Counsel was taken on this point some little time since, and that opinion was that the exercise of a trade in conjunction with Dentistry was not a disqualification, though it might have an influence in deciding whether the practice of Dentistry was *bonâ fide*.

“There are also some other cases, brought before the Council in the Reports of the Dental Committee, which involve distinct considerations. Upon these cases it does not seem that any remarks can be made that would facilitate the work of the General Council in considering them.”

Dr. HUMPHRY said, for the purpose of taking practical action upon what had been presented to them, he had given notice of motion to the following effect:—“That all qualifications now appearing in the Dentists' Register, other than Dental qualifications, be erased therefrom.” Any one could be registered who, at the passing of the Act, was *bonâ-fide* engaged in the practice of Dentistry or Dental surgery, either

* See paragraphs 17 and 18 of the foregoing Report by the Dental Committee.

separately or in conjunction with the practice of medicine, surgery, or pharmacy, and as the Council thought in accordance with the clause of the Act, it issued a schedule differing somewhat from the schedule under the Act, and containing the following rider :—" Is at the passing of this Act *bonâ-fide* engaged in the practice of Dentistry or Dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy." That schedule went forth to the world. They had now taken counsel's opinion, and it was to the effect that the Register, as stated in the Act, was a *Dentists'* Register, and meant that and nothing more, and that they had no right to require anything more, or to insert anything more in the Register. That appeared clearly in counsel's opinion, and also in the statement made by Mr. Ouvry. Whatever might have been the intention on the part of the promoters of the Act as to that which to ordinary minds was an obscure direction in the Act, yet, nevertheless, they had now a distinct opinion of counsel that this was really an unnecessary thing, and that they had no right to make any mention in the Register of any qualifications except those relating to Dentistry. It seemed perfectly clear from these opinions that there never should be any entry in the Register, except those relating to Dentistry. Then came the further question whether they should expunge those entries from the Register. It was clear that they had power to do so, and to amend the Register by striking out these additions, and it seemed very important that they should do so, for it would immediately put an end to all questions that had arisen in such a large number of cases as to whether persons were properly entered on the Register, or whether they had by misconception or by fraud added the words "with pharmacy," "with medicine and surgery;" and it would clear away at once the necessity for entering upon the consideration of the large number of cases mentioned in the report. It was very important that the *Dentists'* Register should contain that which it professed to contain and nothing more, that is to say, that it should contain Dental qualifications and no other; and for this reason, because they had no right to inquire whether those other qualifications were legal or not; they had no right to inquire whether a person who returned himself in connection with pharmacy was on the Pharmaceutical Register, or whether a person returning himself as practising Dentistry in connection with surgery was on any Register as a surgeon; and, therefore, they were really, by placing these additions on the Dental Register, implying a false value to a title which might have no legal existence,

He therefore begged to move the resolution of which he had given notice.

Dr. FERGUS seconded the resolution.

Mr. MACNAMARA said, while thoroughly agreeing with all that had fallen from the lips of the proposer of the resolution, he wished it to be understood that he did not subscribe to the doctrine that was involved in the statement they had heard, that the Council would go quite far enough by carrying this resolution, because unquestionably there were some men who had got on the Register by stating that which was absolutely false. There were several cases where persons appeared on the Register as practising Dentistry in connection with medicine when they knew very well that they were not, and now they wished to have their names taken off, stating that it had been done "through inadvertence." How could they be so stupid as to state that they were engaged in the practice of Dentistry "with medicine" when they knew they were not doing so? and now, when they absolutely cried *peccavi*, were they to escape any punishment whatever for making that which was a false assertion, and for figuring in plumes that did not belong to them? He thought the Council should not be satisfied with simply removing the qualifications. No doubt there were certain gentlemen who had qualifications in medicine and surgery, and perhaps the best thing would be to strike out also those qualifications. There was a hardship, therefore, in connection with those men who had acted *bonâ fide*; and were those who had not acted *bonâ fide* to be awarded only the same punishment which was measured out to those who had acted in a thoroughly *bonâ fide* manner? He agreed that what Dr. Humphrey proposed was the wisest thing to do, but at the same time it was not doing enough, and, while voting for the resolution, he could not look upon it as a finality.

Dr. QUAIN pointed out that the Dental Committee had found that there had been no fraud in any one of the cases referred to by them.

Dr. AQUILLA SMITH said, Mr. Macnamara entirely misread the words of the motion. He had assumed that some of these men had acted fraudulently in getting their qualifications. The Council had nothing to do with that; the motion was simply to strike out the qualifications, and if any fraud had been committed the names would remain on the Register, and they would be just as open to penalty and erasure hereafter. It would be a great waste of time to inquire how these qualifications were put on; the simple fact was that they were on the Dentists' Register, and

counsel had distinctly advised them that they should be removed.

The PRESIDENT said, as a matter of fact, Mr. Macnamara was not speaking to the motion, which was that the Dentists' Register be amended by removing from it all other than Dental qualifications. That had no relation to the question of individual cases which came before them in another category. They were not discussing whether persons were guilty of fraud, because that was entirely beyond the province of the Council. The law was that a committee was to judge as to the facts of the cases, and to submit the facts to the Council. It was for the Council to decide what should take place upon those facts, but they could not discuss whether persons who had been adjudged by the Committee not to be guilty of fraud had actually been guilty of fraud.

Mr. SIMON asked whether the Council had any opportunity of judging whether the facts submitted to them constituted fraud.

Mr. OUVRY said the Committee had investigated the facts; they had communicated with each of the gentlemen referred to, and had received their answers, and they found, as a fact, that their declarations were not made fraudently. He took it that the fact was binding on the Council just as any other fact found by the Committee would be. If it were not so the Council would have to investigate the thousand letters that he had received from those gentlemen, and to found their opinion upon those letters as to whether they had made their application from a mistake or from any action of fraud.

Sir WILLIAM GULL supported Dr. Humphry's motion. He said it was quite beside the question to add any qualifications in the Dentists' Register as to a man's practising medicine or surgery or pharmacy. They might just as well insert that he was a farmer or a hairdresser, and so make the Register look ridiculous. They must, therefore, leave out all qualifications, except such as related to Dentistry.

Prof. TURNER said that no doubt Dr. Humphry's motion would enormously simplify the Register, and their excellent Registrar would be only delighted to have this burden removed from his shoulders. He, however, could not help, without in the least throwing any doubt on the Council, inquiring why the words, "or in conjunction with the practice of surgery, medicine, or pharmacy" were put into the Act. There was an expression in a letter from Mr. Tomes which they ought not to pass over. Mr. Tomes was the moving spirit in the framing of this Bill, and it was under his

auspices that the Bill was introduced. There was no doubt at all, from an expression in the letter, as to what was in Mr. Tomes's mind when the words "either separately or in conjunction with medicine, surgery, or pharmacy" were introduced into the Bill. Mr. Tomes said, "The end might be gained by the use of an initial letter or by an asterisk; but it would be far better to use for the purpose the words of the Act, namely, 'in practice before July 29th, 1878, in conjunction with pharmacy or medicine or surgery, as the case might be,' and this would, at the same time, carry out most perfectly both the letter and spirit of the Dentists Act." From these words it was obviously in the mind of Mr. Tomes that there should be some indication in the Dentists' Register bearing on those matters. Why, then, were they put in the Act unless they were to be brought prominently forward in the Dentists' Register? What information had the Medical Council on this question, as to whether a person applying to be registered under Clause C was simply a Dentist, or was a Dentist and something more. They could have no information unless they asked for it, and it certainly seemed as if, by the clause in the Act, they were required to ask for it. If not, he could not understand why the alternative proposition was put into the clause. There was another matter as to which he had been somewhat disappointed in connection with the opinions of Counsel, and that was as to the possibility of admitting to the Dentists' Register, under a separate head, other titles than Dental titles. There were, for instance, some Dentists who were graduates in medicine at universities, licentiates and members of colleges of surgeons, and it was thought it would be a suitable thing if those gentlemen holding medical qualifications in addition to the Dentists' qualification should express their qualifications along with the Dental qualification in the Dentists' Register. It was quite clear that Mr. Tomes did intend that there should be some expression in the Dentists' Register showing on what conditions a man was admitted to the Register.

Dr. SCOTT ORR said it was not the business of the Council to decide what people meant in framing an Act of Parliament: they must look to the Act itself. There was no doubt that the Council had on a previous occasion resolved to register other than Dental titles, and he was one who opposed the resolution. They now had the clear opinions of counsel that they could register no qualifications except Dental qualifications, and it could not be doubted that the Council must be guided by, and act up to, the legal opinions that had been taken.

The discussion was adjourned for a short time in order that the Council might proceed to consider the case of Mr. John Hamilton, of No. 404, Oxford Street, who had been summoned to appear before the Council at 4 o'clock. It having been ascertained that Mr. Hamilton was not in attendance,

Mr. OUVRY read the notice which had been forwarded to Mr. Hamilton, and also the facts relating to his case, which are given in the Report of the Dental Committee.

The Council then proceeded to deliberate on Mr. Hamilton's case in private, and on strangers being readmitted.

The PRESIDENT read the following resolution, which had been agreed to by the Council:—"That as it has been proved to the satisfaction of the General Medical Council that John Hamilton has been guilty of disgraceful conduct in a professional respect, the Council does, by this order in writing, direct his name to be erased from the Dentists' Register, in conformity with Clause 13 of the Dentists Act.

Dr. STORRAR (in resuming the discussion upon Dr. Humphry's motion) said,—Prof. Turner had made an allusion to the wishes and intentions of Mr. Tomes, and the association with which his name was identified. Mr. Tomes was a personal friend of his own, he knew his feelings on this subject, and he felt that, knowing them, he ought to state those views, and the views of those with whom Mr. Tomes was associated, so far as he could. Their great desire was to raise the position of their profession, and to purge out a number of loose persons whom they knew took refuge in it. At the same time it was their great desire not to be so limited as to exclude persons engaged as pharmacutists, and who were to a certain extent practising as Dentists. But when the period came for registration there was a perfect rush of persons. He believed he should not be wrong in saying that more than double the numbers of persons presented themselves for registration than had been expected by Mr. Tomes and his coadjutors. Mr. Tomes and his friends not unreasonably thought that if persons declared themselves to be practising as Dentists along with pharmacy, and their names did not appear on the Register of the Pharmaceutical Society, that would be a fair *prima facie* ground for their removal. But the schedule which described the form of application did not carry out that intention, and the result was no doubt inevitable; and it was only due to Mr. Tomes and to the very highly respectable body with which he was associated to say that they would be bitterly disappointed, and the period would probably be delayed for years within which they hoped to see a more dignified profession of Dentistry than

had hitherto existed. Still, although it would be a disappointment to them, he did not mean to say that it was for these highly respectable gentlemen to stand in the way of what was clearly the law. It occurred to him whether it might be possible for the Registrar to make more ample use of the statutory declaration which it would be in his power to impose. There were many men who would come forward and sign an ordinary declaration, such as the one contained in the schedule, who would probably think twice before committing themselves to a statutory declaration. But the question now was whether the bulk of these men, having got upon the Register by their ordinary declaration, should now be required to make a statutory declaration. That was a point for Mr. Ouvry to consider. He (Dr. Storrar) had not a word to say against the motion before the chair, but knowing Mr. Tomes and the motives which influenced him, it was only fair that it should be clearly before the Council that those motives were deserving of all honour and praise.

Dr. QUAIN said he quite agreed with the praise that Dr. Storrar had accorded to Mr. Tomes and his good intentions. The Council, however, had nothing to do with intentions, they had only to deal with the Act of Parliament before them, and nothing could be clearer than the opinions expressed by those whom they had consulted. Mr. Tomes and his friends had tried impossibilities; they had tried to induce Parliament to say that a man should be engaged separately as a Dentist and nothing else. Parliament would never consent to such a law as that. He thought this was only one of the many illustrations of bad results from amateur legislation.

Dr. HUMPHRY, in reply, said he was glad that the Council had endeavoured to carry out the spirit of the Act in accordance with the intentions of those who framed it, and that they had acted when they made their first Dentists' Register in accordance with those intentions. The Council had done their best to carry out the spirit of the Act. He quite agreed that the intentions of the Act were in accordance with the view they had taken of it, and that it was to register only those who practised separately or in conjunction with medicine, surgery, or pharmacy. Such was the view they took in the Executive Committee, and it was deplorable that the words of the Act did not more closely correspond with the intentions. They knew full well that intentions and words, especially in Acts of Parliament, very often did not correspond, and that had clearly been the case in the present Act. They, however, must be guided not by inten-

tions, but by the words, and by the interpretations of those words which were brought before them by their legal adviser, and must admit to the Register all this shoal of persons whom no doubt it was the intention of the promoters of the Act to exclude. There was, however, this consolation to be taken, that as time went on these evil things would gradually become less and less, and that ultimately, after the lapse of a certain number of years, those only would be admitted to the Register who had a qualification obtained from some of the medical authorities, and in that way the end they desired would be attained, and the Dental profession would be raised by virtue of this Act. It had been pointed out that the words of the resolution required some alteration. The words were "all qualifications excepting Dental qualifications be erased." Strictly speaking, the words did not quite correspond with the intentions. There were no "qualifications except Dental qualifications," and he would therefore propose to alter the resolution in this way:—"That all statements with reference to the practice of medicine, surgery, and pharmacy, now appearing in the Dental Register, be erased therefrom." It did not alter the intention of the resolution, but simply put the words in a somewhat different form. Dr. Fergus agreed to the alteration, and if the Council would permit it, it would more fully express their intentions.

The resolution as amended was then put to the Council and agreed to.

Dr. PITMAN moved:—"That the Council is not in possession of evidence to show that any of the registered Dentists named in the 'corrected list of persons' submitted by the Honorary Secretary of the British Dental Association (set forth in pp. 245 to 248 of vol. xvii of the Council's Minutes), or of the registered Dentists named in the letter of Dr. Jacob (Minutes, vol. xvii, p. 256), were not, at the time of their registration, *bonâ fide* engaged in the practice of Dentistry, and is therefore not prepared to order the removal of any such persons from the Dentists' Register." He said the Council could scarcely pass any opinion on the facts as set forth by the Dental Committee, but they must accept, and he hoped would accept, the motion which he proposed.

Dr. AQUILLA SMITH seconded the resolution.

Mr. SIMON was understood to say the form of the resolution did not refer to the preceding report of the Dental Committee, upon which it was founded.

Dr. PITMAN said if they read the report they would find it went fully into every question, and gave reasons for believing that these applications were not fraudulently made.

Dr. QUAIN said that there was no evidence that any one of these men had obtained registration, except on a declaration that he was *bonâ fide* engaged in the practice of Dentistry, and the Registrar registered no one who did not produce to him an attestation, declaring that he was *bonâ fide* engaged in the practice of Dentistry. Therefore, until it was proved that he was not *bonâ fide* engaged in the practice of Dentistry, every one of these persons must remain on the Register.

The PRESIDENT stated that the notice of motion had been drawn up with much care by the solicitor, and it was a statement, so far as it went, of that which the Committee had in evidence, but it went no further. The Committee had been very careful to state nothing beyond the facts which they knew. The particular cases were classified in the report, but to make a summary of them required very great care.

Mr. MACNAMARA said he certainly could not vote for any resolution which would sanction the retention of some of the names returned on the Dental Register. How could the Council appear before the public or before their professional brethren if they allowed the name of such a person as Mr. Ackermann to remain in the Register? He carried on the business of a hairdresser, admitted that he was ignorant of the anatomy of the mouth, and did nothing but extract teeth. He wished to know if all the names printed in the report were covered by the resolution. (No, no.) What names, then, were? He heard Mr. Simon ask the question, and the answer was not at all satisfactory. He wished to have a clear and distinct statement as to what names were covered by the resolution.

Dr. PITMAN said the resolution referred to two lists set forth in pages 245 to 248 of volume 17 of the Council's Minutes.

After some further suggestions the resolution was passed in the following form:—"That the report of the Dental Committee not having put the Council in possession of evidence to show that any of the registered Dentists named in the corrected list of persons submitted by the Honorary Secretary of the British Dental Association (set forth in pp. 245 to 248 of vol. xvii of the Council's Minutes), or of the registered Dentists named in the letter of Dr. Jacob (Minutes, vol. xvii, p. 256), were not, at the time of their registration, *bonâ fide* engaged in the practice of Dentistry, the Council is therefore not prepared to order the removal of any such persons from the Dentists' Register."

Dr. HUMPHRY moved, "That the persons mentioned in Clause (5) of the Dental Committee's report as having been

actually removed from the Register at their own request be, on their application, restored to the Register without fee, subject to the discretion of the Executive Committee as to the grounds on which their names were so removed." On reference to the report it would be seen that the persons referred to were—first, those who had withdrawn their names in consequence of receiving threatening letters from the Secretary of the British Dental Association,—threatening letters, that is, relating to the fact of their having registered as pharmacutists without being on the Pharmaceutical Register; secondly, there were persons who had discontinued the practice of Dentistry and pharmacy; thirdly, those who had withdrawn their names through misapprehension; and, fourthly, chemists' and druggists' assistants or managers, while in one case the person was a member of the National Association of Herbalists. The greater number of these had withdrawn their names in consequence of a misapprehension into which they were led by the Council's schedule, and it seemed only fair that under those circumstances they should be allowed, on application, to have their names restored without fee. The Council had decided that five shillings should be paid for restoration to the Dental Register of a name which had been erased therefrom, but under the circumstances of the present case he proposed that the names should be restored without payment of any fee, "subject to the discretion of the Executive Committee as to the grounds on which their names were so removed." With regard to chemists' and druggists' assistants or managers, the legal opinion was, "We are of opinion that duly qualified Dentists need not necessarily be in business on their own account." It appeared, therefore, that all these persons had withdrawn their names under a misapprehension which was in part shared by the Council, and it was only right that they should be allowed, if they so desired, to have their names restored to the Register, subject to the discretion of the Executive Committee.

Dr. QUAIN seconded the motion.

Dr. AQUILLA SMITH said he regretted that he could not vote for it. He entirely admitted that those gentlemen withdrew their name under a misapprehension, but the Act said that the name of any person erased from the Dentists' Register at his own request or with his consent might be restored to the Register on his application and payment of a fee not exceeding the registration fee, fixed by the Council, while the fee fixed by the Council was five shillings. The Act said nothing about the circumstances of the withdrawal,

and unless the standing order relating to the fee was rescinded he did not think the motion could be agreed to.

Dr. FERGUS said the Council had the power to fix the fee, and therefore he could not see why they could not dispense with it in the present case.

Mr. SIMON said he was not the only member of the Council who felt that their position was rather a humiliating one; but if they had led other people into error of course it was desirable that they should do what they could to remedy it. If it was thought fit to pass the proposed resolutions he considered that some words should be added, such as the following:—"And the grounds on which registration is claimed." It should be left open to the Executive Committee to review the cases. Of course, if the Council was responsible for these names being taken off the Register when they ought not to have been, there should be no charge for putting them on again.

On the motion of Dr. AQUILLA SMITH, the resolution was agreed to with the addition of the words suggested by Mr. Simon.

Dr. AQUILLA SMITH proposed, "That no evidence has been adduced to justify the removal from the Register of the name of Christian Friedrich Wilhelm Ackermann, whose case is set forth in Clause 17 of the Dental Committee's Report."

Sir JAMES PAGET seconded the motion.

Mr. MACNAMARA said this was one of the cases to which he must object. The Council was a deliberative body, and surely they were not going to send out to the world that Dentistry consisted of nothing but the extraction of a few teeth, and that a man might be a Dentist whose principal occupation seemed to be dressing hair, and whose wife kept a tobacco shop. If such a case as that was to be retained on the Dentists' Register, it would be far better for the profession of Dentistry that such a Register had never come into existence, and it would be a standing disgrace to the Council. The facts had to be taken from the Report of the Dental Committee, and that Committee had reported that this man knew nothing whatever about the anatomy of the mouth; was such a person to be admitted on the same Register as the honored name of Tomes? On behalf of the Dental profession, and on behalf of surgery, he most earnestly protested against the retention of such a person's name on the Register.

Dr. QUAIN said he thought that if Mr. Macnamara had seen these two persons, he could not but have noticed their intelligence and truthfulness. One of them had been engaged for three years in connection with the German hospitals and the

German army, and his father practised as a Dentist before him. In Germany it was usual, as it formerly was in England, to combine the practice of surgery with that of a barber. There was nothing dreadful about that. The person referred to in the resolution was asked, "Do you pull out many teeth?" and he said he pulled out 612 last year. The impression left on the mind of the Committee was that they would much rather have him to extract their teeth than many of those whose names had been left on the Register. What was Dentistry? The reputation of the celebrated Cartwright himself was entirely founded on the pulling out of teeth. But Dentistry had now extended to stopping and scraping teeth. The men whom Mr. Macnamara objected to were apparently men of great intelligence, and he could not, and would not, vote to have their names taken off.

Mr. SIMON said he hoped Dr. Aquilla Smith would see his way to alter the form of the resolution, and let it be to the effect that the Council was advised that there did not exist a legal case for removing these gentlemen from the Register. It would be quite consistent to say that no evidence had been adduced justifying the removal of the names. The Act said that it was expedient that provision should be made for the registration of persons specially qualified to practise as Dentists, and he could hardly find it in his conscience to say that there was any reason to remove the name of a man because he did nothing but extract teeth. He bowed unreservedly to the legal opinion, but he hoped the resolution would be so framed as to show that the Council was simply acting mechanically in obedience to the law. He would suggest that the resolution should read, "That no legal case exists for the removal," &c.

The PRESIDENT said he thought the word "evidence" bore that signification.

Mr. SIMON said that in his opinion evidence in a medical sense had been adduced to justify the removal, but in a legal sense it had not.

Dr. AQUILLA SMITH said he had been very much struck with the frank, straightforward way in which these persons answered the questions put to them, and the conviction of the Council was that they were more competent than many whose names were still on the Register as practising Dentistry in connection with pharmacy. They were trained and disciplined in drawing teeth, and they stuffed teeth, but they added, in the most artless way, that they never used anything but gutta percha. It was no use for the Council to begin discussing what was the meaning of "practising

Dentistry;" for if they were to talk about it for a month they could not settle the matter among themselves. He did not object at all to Mr. Simon's suggestion.

Sir WM. GULL said he thought the Council was in a very unfortunate position, but they must submit to it. He should be sorry if it went forth to the world that they as medical men had decided that Dentistry was nothing but pulling out teeth. Dentistry consisted in saving teeth.

The PRESIDENT said that it had been suggested by Mr. OUVRY that the resolution might read "That, on the evidence, the Council does not see sufficient legal grounds on which to direct the removal from the Register." &c. That would leave the case open to full discussion hereafter on medical grounds.

Dr. AQUILLA SMITH accepted the suggestion, and the resolution so altered was seconded by Sir James Paget and agreed to, as was also the following resolution, "That, on the evidence, the Council does not see sufficient legal grounds on which to direct the removal from the Register of the name of August Leopold, whose case is set forth in clause (18) of the Dental Committee's Report."

Dr. AQUILLA SMITH then moved, "That in regard to Alexander Schocke, mentioned in clause (19) of the Dental Committee's Report, there is no evidence before the Council on which it can act."

Dr. PITMAN seconded the motion.

Mr. OUVRY said that the person referred to had shut up his shop, and could not be found, so that he could not be summoned to attend before the Committee. Recently he had gathered courage, and reopened his shop.

The PRESIDENT said under those circumstances there must be a new procedure, but at present there was nothing which the Council could act upon.

The resolution was agreed to.

The following returns were, on the motion of Dr. PITMAN, seconded by Dr. AQUILLA SMITH, ordered to be entered on the Minutes.

The Council then adjourned for a few minutes, after which they reassembled, and the minutes of the meeting were confirmed.

Table showing Results of Professional Examinations held in 1880 for Qualifications granted under the Dentists Act.

NAME OF LICENSING BODY.	DIPLOMAS.	NATURE OF EXAMINATION.	WITH CURRICULUM.		WITHOUT CURRICULUM.		TOTAL.	
			Number Rejected.	Number Passed.	Number Rejected.	Number Passed.	Number Rejected.	Number Passed.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.	Licence in Dental Surgery.	Written, Oral, and Practical.	1	17	0	1	1	18
ROYAL COLLEGE OF SURGEONS OF EDINBURGH.	Licence in Dental Surgery.	Written and Oral.	0	1	0	4	0	5
FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.	Licence in Dental Surgery.	Written, Oral, and Practical.	0	0	11	23	11	23
ROYAL COLLEGE OF SURGEONS IN IRELAND.	Licence in Dental Surgery.	Written, Oral, and Practical.	0	0	8	47	8	47
UNIVERSITY OF HARVARD.	D.D.M.	Written and Practical.	5	11	0	0	5	11
TOTALS			6	29	19	75	25	104

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

THE Annual Meeting of this Association was held on Wednesday, January 6th, at 8.30 p.m., when the Treasurer announced that the finances of the Society were in a most prosperous condition; and the retiring President (Mr. W. A. N. Cattlin, F.R.C.S.) delivered an address, of which an abstract is given below, "On the Imperfections of the Dentists Act, with suggestions as to the alterations required to protect the interests of qualified surgeons." The following is a list of the newly elected officers of the Society:

President—T. Edgelow, Esq.

Vice-Presidents—J. A. Baker, Esq.; Samuel Cartwright, Esq.; W. A. N. Cattlin, Esq.; F. B. Imlach, Esq.; S. J. A. Salter, Esq., F.R.S.; and John Smith, M.D., F.R.S. Ed.

Treasurer—S. H. Cartwright, Esq.

Honorary Secretary—J. Hamilton Craigie, Esq.

Council—E. Bartlett, Esq.; T. Fairbank, Esq.; Francis Fox, Esq.; C. Gaine, Esq. (Bath); W. A. Hunt, Esq. (Yeovil); W. D. Napier, Esq.; W. G. Ranger, Esq.; and A. Winterbottom, Esq.

After giving a retrospect of the work of the Society during his year of office, Mr. Cattlin proceeded to speak of the Medical Act and its imperfections, the constitution and functions of the Medical Council, as they are and as they should be, and the proposed conjoint scheme. He then passed on to deal with the special subject of his address as follows:

"I turn to the subject of Dental politics with great reluctance. The dispute which is raging between the parties respecting the Dentists Act has not been conducted in a satisfactory manner.

"In 1859 a charter was obtained by the Royal College of Surgeons of England, which enabled it to grant licences in Dental surgery to candidates who were little better than half educated up to the standard of medical fitness required from its members.

"Thus was permanently introduced the questionable principle of authorising persons to practise an important branch of surgery who had only obtained a limited knowledge of the science.

"This bold step was undoubtedly an act of great injustice to every fellow and member of the College, yet they were in no way consulted in the matter.

"The only precedent I can find for granting a special

degree in this country of late years is when the licence in midwifery was given by the English College of Surgeons to *three* persons who were not qualified practitioners; but the practice was immediately discontinued, and it has since been issued only to members of the College.

"The Dental licence has, however, been given to persons who are not members of the College for more than twenty years, and the practice is still continued.

"The Dentists Act goes further than the charter, and extends the same evil to the Scotch and Irish Colleges. It also encourages the mere 'Dentist' to assume the prefix of 'surgeon,' to the injury of those who have an exclusive right to the title.

"Finally, by establishing a separate register for Dentists, it completely divorces that branch of surgery from the whole science. These are the wrongs of which we, as members of the College, complain.

"The Dentists' Register is now crowded with ignorant pretenders, who are supposed to have made a false and fraudulent declaration 'that they were in practice as *bonâ fide* Dentists when the Act became law;' but, as there is no legal definition of the words *bonâ fide* Dentist, I fear the General Medical Council will be unable to erase their names, and they will be a disgrace to the profession for a generation to come.

"There will be a meeting of the Medical Council shortly (at the cost of about £400) to consider what can be done to remedy this condition of things, but, unless they inquire into each particular case and act upon the rules of common sense, I see no way out of the dilemma.

"The General Medical Council, under the circumstances, has power to expunge the names of impostors from the Dental Register, and their decision is final; but I fear they will be obliged to refer the matter to a court of law, and much time and money will probably be wasted before a legal decision can be obtained.

"It has long been an established fact that a full knowledge of the science of medicine is absolutely necessary to the proper understanding and successful practice of any branch of surgery, and on that ground the legislature requires its public officers to hold the double qualification. By this it will appear that the licensing of half-educated specialists is repugnant alike to the best interests of the public and to the medical profession at large. It also forms a bad precedent for future action."

After quoting with approval an editorial article which appeared in the 'Lancet' of October 30th, 1880 (see

'B. J. D. S.' for November 15th, p. 1081), Mr. Cattlin goes on to say :

"It is simply idle to persuade any but the most prejudiced that a partial education is sufficient for the successful practice of any branch of medicine. A greater deception was never fostered by the mind of man, and yet the chief promoters of the Dentists Act have suffered themselves to be deluded by this false and ridiculous idea.

"The surprising effects which may result from even slight pressure or irritation of a very small branch of our complicated nervous system (producing serious disturbance in remote parts) can only be traced and understood by those who have a full and intelligent knowledge of its functions. The discoveries of Dr. Brown-Séquard have shown how necessary this knowledge is to the practice of Dental surgery. What half-educated anatomist could trace the cause of deafness to irritation of the nerve of a tooth, unless he understood the great theory of reflex paralysis? And there are numerous complicated symptoms arising from diseased teeth (sometimes coupled with functional disturbance affecting the general health) which can only be skilfully treated by one who has a minute knowledge of all the resources of medical art.

"It is natural that some persons, after they have obtained a full knowledge of their profession, attested by diploma, should prefer to give special attention to some branch for which they have a particular choice or aptitude; and to this there can be no sort of objection, but a *special licence is not required*. The public are quick to discover and avail themselves of superior abilities if they be made known to them in the usual way by published works.

"Having answered the fallacious argument that the education of a surgeon is not necessary for a Dentist, I will ask and answer the question, What difficulties are there to prevent a surgeon becoming a Dentist if he makes a special study of Dental surgery *after he has taken his diploma*? I sincerely hope this practice will be adopted by young surgeons.

"It has been asserted that the time required to learn both Dentistry and surgery would be too long, and that the hand can only be tutored in early youth to perform the delicate operations of Dental surgery. This (so far as it is true) applies with equal force to delicate operations on the eye and other parts of the body, and yet there is no lack of skilful operators in every branch of surgery.

"Gold stopping is, perhaps, the only Dental operation which requires considerable practice, but the necessity for

the use of that particular metal has been greatly exaggerated.

"It is a fact that has been proved by experiment, and is confirmed by experience, that only the few (however well taught) acquire the power of manipulation which is necessary to make a *perfect* gold filling in awkward positions within the mouth. Many large cavities in the molar teeth (if sufficient care be taken to prepare them) may be well filled by a person of ordinary skill with palladium amalgam, and some of the osteoplastic preparations are suited to the same operation in incisor and other front teeth. I do not desire to detract from the value of *perfect* gold stoppings, but I *do* say that only a few of the best Dentists can make them *perfect*. It is trifling with common sense to deny that all the operations in Dental surgery can be well performed by the surgeon after a moderate term of experience. If further proof be required to contradict the false statement that proficiency in Dentistry can only be acquired in early youth, let the honorable and brilliant career of such men as Bell, Craigie, Harrison, Arnold Rogers, and numerous others, now living and equally skilful, who began to practise the specialty at mature age, proclaim the fallacy of such a doctrine. The truth is that mechanical talent is not uncommon; most men possess it, but in *different degrees*.

"Moreover, a delicate sense of touch (as contra-distinguished from what is called a heavy-handed person) belongs to the individual, and is generally born with him. It is a perfection of touch which is the gift of nature, and art cannot imitate it. On the other hand, a person who is peculiarly rough may improve in manipulation by experience, but he will never attain to the same *degree* of perfection as that to which I have alluded as the gift of nature.

"Purposely omitting any reference to the mechanical branch of Dentistry (*which I think should be practised separately*), let us seriously inquire what there is in the surgical branch which gives the slightest excuse for a special licence. Verily I believe the manner in which this document has been forced upon the public is as unjust as it is impolitic. It is a monstrous fact (that no longer should be tolerated) that before the student is allowed to pursue his studies at the Dental Hospital of London, he is required to give a written undertaking that it is his intention to take out the Dental licence.

"Having arrived at this point, let us consider what the public duty of this Association is under the vexatious difficulties that lie before it. I think we should endeavour to convince our opponents that we hold our opinions solely

because we believe them to be right. I am not one of those who think that an intelligent minority should, either from the love of popularity or the dread of defeat, go with the multitude to do evil; but it is always wise to show polite deference for the opinions of others.

“We should endeavour to obtain a just and reasonable compromise by the amendment of the Dentists Act to the extent which I have indicated, namely, that no one but a qualified practitioner should be allowed in future to receive the Dental licence, or use the title of ‘surgeon’ alone or in conjunction with any other word or words, and that a clause to the same effect should also be inserted in the new Medical Amendment Bill:—That the Dentists’ Register should be purged and made CONSPICUOUSLY DENTAL; and that those who have been tempted to take the Dental licence, thinking it to be a more honorable degree than it really is, should have the way made easy for them to acquire the diploma of member. I think this Association should show good feeling by helping them in every way. It is given to but few to possess so fine a judgment as will enable them to perceive and correctly estimate the course of coming events in great and complicated matters, and to fewer still amid the din of strife and the force of rivalry so to direct their conduct that it shall tend only to the public good. ‘Bad as the world is, respect is always paid to virtue.’ Even our bitterest enemies will not dare to raise the treacherous voice of slander against us if we oppose them with generosity, and ever keep in mind the good old maxim, ‘To err is human, to forgive divine.’”

EDINBURGH DENTAL HOSPITAL AND SCHOOL.

At the annual meeting of directors and subscribers to the Edinburgh Dental Hospital, Dr. Alexander Peddie was appointed consulting physician in place of Prof. Sanders, who is at present incapacitated by illness. From the directors’ report it is seen that, during the year, 2000 males and 2433 females applied at the Dental Hospital for treatment. Details are given of the trades and occupations of the patients. Of course, the greater number came for extraction of teeth, but no fewer than 153 cases had been treated by stopping the teeth, and various cases of cleft palate and malformation were dealt with. The number of students attending was as satisfactory as could be expected during the second year of the institution, and their attendance at the hospital had been all that could be desired. Mr. Macleod was appointed Dean and Treasurer, and Mr. J. K.

Chisholm Dental Secretary. The Dental staff was re-appointed, and voted the thanks of the meeting. Financially the institution is in a satisfactory condition.

Miscellanea.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

AT the Quarterly Examination, held on 25th and 26th January, the following gentlemen passed the First Examination :

Mr. J. Cumming, Glasgow.

Mr. J. Foulds, Glasgow.

The following passed the Final Examination, and were admitted Licentiates in Dental Surgery :

Mr. Wm. Brown, Stratford-on-Avon.

Mr. R. M. Capon, Liverpool.

Mr. James A. Jones, Hanley.

Mr. David Taylor, M.B., C.M., Glasgow.

Mr. James Wallace, Glasgow.

Three Candidates were remitted on the First and one on the Second Examination.

The following were the questions submitted at the above examinations :

FIRST EXAMINATION.

Two hours allowed. At least one question to be answered in each section.

Sect. I.—Anatomy.

1. Enumerate the bones which form the septum of the nose.

2. Give the course, relations, and distribution of the facial nerve after issuing from the stylo-mastoid foramen.

Sect. II.—Physiology and Chemistry.

1. What functions of the body are influenced by atmospheric pressure?

2. Enunciate the laws of chemical combination.
3. Describe shortly the method of preparing sulphuric acid. Give its physical and chemical properties.

SECOND EXAMINATION.

Three hours allowed. At least one question to be answered in each of Sections I and II, and two questions in each of Sections III and IV.

Sect. I.—Surgery.

1. Give the causes, symptoms, treatment, and sequelæ of a case of parotitis.
2. Mention the chief points to which attention should be directed in diagnosing between a simple and a malignant tumour of the anterior triangle of the neck underneath the lower jaw.

Sect. II.—Medicine and Materia Medica.

1. What is stomatitis? State its causes, and give the symptoms and treatment.
2. (a) Name the actions, poisonous and medicinal, of the preparations of arsenic and zinc. (b) Give the doses of acetate of lead and sulphate of zinc.

Sect. III.—Dental Anatomy and Physiology.

1. Give a short statement of the views held regarding the nature and position of the membrana preformativa.
2. Describe the terms "calcoglobulin" and "calcospherite"—their physical and chemical properties, and the analogy they bear to the structures of a calcifying tooth.
3. Enumerate the structures contained within the pulp cavity.

Sect. IV.—Dental Surgery and Pathology.

1. When no treatment is adopted for a carious tooth, give the probable consequences, in the order of their occurrence, from the first appearance of caries to the loss of the tooth.
2. Under what conditions are the operations of filing and filling to be employed, and what are the characteristic features of each?
3. What conditions are favorable to pivoting, and what conditions contra-indicate pivoting? What teeth admit of it?

APPOINTMENT.

|| Mr. WILLIAM WILLIS, L.D.S.I., has been appointed Honorary Dental Surgeon to the Shibden Hall Industrial School, Halifax.

Obituary.

THE LATE MR. E. P. WARREN, OF BIRMINGHAM.

WE regret to have to announce the death of Mr. Edward Pritchard Warren, L.D.S. Eng., of Old Square, Birmingham. Mr. Warren, who was sixty-three years of age, had been in practice in Birmingham for more than thirty years, and was widely known and respected in that neighbourhood.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE ABUSE OF AMALGAM.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I have noticed a letter in the last number of your Journal signed "Fair Play." The writer contradicts some statements made by Mr. J. J. Musgrave in a former number respecting the extraordinary use, and (I might say) abuse of amalgam in Liverpool. "Fair Play" tells us that he does not live in Liverpool. Now, Mr. Musgrave's remarks refer more particularly to that city, and as far as it is concerned, I am quite willing to corroborate them. I consider that Dental surgery proper, by which I mean the operative part, is at a very low ebb in Liverpool. There are hosts of second and third rate Dentists here, but the number of educated and qualified men is comparatively very small.

If "Fair Play" will look at the list of Dental licentiates for Liverpool in the Medical Directory, he will find but two mentioned who have the L.D.S. Eng. *by curriculum*. Fancy the second city in the Empire only possessing two men who have undergone a thorough Dental Education! The number of amalgam stoppings that are inserted here is

really incredible. In confirmation of this, refer to the statement which appears in the advertisement of Davis's amalgam at the end of your Journal, that "one Liverpool Dentist returns thirty-six ounces of waste at one time!" If these fillings were put in in a proper manner, and all of them carefully polished, such excessive use of amalgam might be defended; but I can safely assert that the contrary is the case. For of very many that have come under my notice, nearly all were quite guiltless of anything approaching a polish.

Dr. Waite of this city read a paper a short time ago before a Society of Dentists in America, and in it he attacked, in a very trenchant manner, the wholesale use of amalgam that goes on here. He evidently described the state of things as he had seen them in Liverpool; but I believe that his audience understood him to be describing the practice of English Dentists generally. Of course, if a Dentist finds that his patients are unwilling to repay him for his trouble in inserting a gold filling, he will have recourse to amalgam. And I am afraid that quackery and cheap Dentistry have so spread in our City of Liverpool that recourse to them has become second nature to her citizens. People, even of good position and means, grumble excessively if charged more than a guinea for contour gold fillings that have perhaps taken a couple of visits to perfect.

The only remedy for such a state of things that I can think of, would be for the qualified men to meet together and inaugurate a Dental Society similar to the Odontological Society of London. The Society might hold its meetings in the Dental Hospital, which is rather a good building.

With this suggestion I close my remarks upon the abuse of amalgam in Liverpool. Hoping that you will find space for their insertion.

I am, &c.,
Οδοϋς.

DISINFECTION OF INSTRUMENTS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In answer to Mr. Prager about guarding against the inoculation of syphilis through the agency of Dental instruments, I think the following plan will prove useful:—After each operation thoroughly cleanse the instruments in hot water, then dry them and smear over the points with the following:

Acid. Carbol., ʒj;
Ol. Olivæ, ʒj.

I am, &c.,
W. H. C.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under :

Twelve Months (post free)	14s. 0d.
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Communications have been received from Messrs. Chas. Sims (Birmingham); E. R. Showler (Crouch Hill); the Secretary of the Faculty of Physicians and Surgeons (Glasgow); W. C. J. Miller (London); "Odons;" "W. H. C.;" "Right and Justice;" &c.

BOOKS AND PAPERS RECEIVED.

'L'Odontologia.'
 'Johnston's Miscellany.'
 'Lancet.'
 'Medical Times.'
 'British Medical Journal.'
 'Missouri Dental Journal.'
 'Correspondenz Blatt für Zahnärzte.'
 'Journal of the Chemical Society.'
 'Minutes of the General Medical Council,' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

No. 315.

LONDON, MARCH 1, 1881.

VOL. XXIV.

A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter
Session, 1880.

By THOMAS GADDES, L.D.S. Eng.

Lecturer also on the Elements of Histology; Assistant Dental
Surgeon to the National Dental Hospital.

LECTURE III.

GENTLEMEN,—In my last lecture I pointed out the general structure and composition of bone in the higher vertebrates. That tissue, when compared with the bone of osseous fishes, presents very great differences; and when contrasted with the bony tissue of cartilaginous fishes there is little resemblance. The higher an animal stands in the scale of organisation, the more distinct and characteristic are not only its various organs, but also the different tissues which enter into their composition. This is a law which we shall find prevailing the animal kingdom. Instances of that law will ever and anon crop up before us in our study of odontology.

Cementum.

Cementum is the most external hard tooth-tissue. It forms a coating of variable thickness over the roots of teeth, and in some herbivorous animals, notably the elephant and ruminants, it also covers the enamel upon the crowns. The cementum is ordinarily said to be absent from the crowns of the teeth of Carnivora, but Mr. C. S. Tomes has observed it on the teeth of Primates, Carnivora, and Insectivora. In man it is present on the crowns of his teeth in a rudimentary condition, known as *Nasmyth's membrane*.

Cementum, both in structure and composition, is closely allied to bone. Indeed, it can be looked upon as a further differentiation of bone. This correspondence of the cementum with bone, which, when it exists in sufficient quantity, becomes almost identical with true bone, is illustrated by the varieties of microscopic structure which the cementum pre-

sents in different classes of animals, and which always corresponds with the modifications of the osseous tissue of the skeleton in those animals. Thus the cementum in osseous fishes, in which the bone is not characterised by lacunæ, does not likewise contain lacunæ.

As cementum ordinarily exists upon the roots of human teeth, it is unvascular. It is only under exceptional circumstances, or where the tissue is thick, that it contains vascular canals, and in this respect resembles bone.

Seeing this relation between the structure of cementum and the structure of the bone of the same animal, and also the difference as to vascularity in cases where the cementum is of various thickness, it will be most expedient to describe cementum as found upon the human teeth.

Cementum consists of a calcified, laminated basis substance, containing lacunæ and canaliculi. According to the composition of the cementum—it containing about 67 per cent. of inorganic matter—it will be seen to be a harder tissue than bone which, as we have seen, contains about 66 per cent.

The following table sets forth the chemical composition of the several substances named therein :

	Horn (Ornitho- rhynchus).	Bone.	Cement (Ox).	Osteo- dentine (Pike).	Dentine.	Enamel.
Chondrin	Albumen 99.5	32.17	31.31	30.60	27.61	3.39
Fat.....		1.13	0.93	1.18	0.40	0.20
<i>Organic</i>	99.5	33.30	32.24	31.78	28.01	3.59
Phosphate and Fluoride of Calcium	0.5	53.04	58.73	63.98	66.72	89.82
Carbonate of Calcium .....	...	11.30	7.22	2.54	3.36	4.37
Phosphate of Magnesium ...	...	1.16	0.99	0.73	1.08	1.34
Other Salts .....	...	1.20	0.82	0.97	0.83	0.88
<i>Inorganic</i>	0.5	66.70	67.76	68.22	71.99	96.41

The lacunæ are very irregular in size, in form, and in their distribution. Some are comparatively large and others small; and there would appear to be no definite relation between, or arrangement of, the various sized lacunæ.

The lacunæ present all sorts of peculiar and irregular forms, particularly in the thicker portion of the cement. They are elongated in the direction of the lamellæ or long axis of the tooth.

The canaliculi or, as they are sometimes called, processes of the lacunæ, are most abundantly given off at right angles to the lamellæ, and are for the most part directed towards the outer surface than towards dentine. Many of the canaliculi are of great length and of large diameter. The canaliculi of neighbouring lacunæ anastomose freely with each other, and establish a network of communication throughout the whole body of the cementum. And, furthermore, the canaliculi are occasionally connected with the terminal branches of the dentinal tubes.

In the living condition these lacunæ are not *lacunæ*, or spaces, literally, neither are they so in bone; but they are filled or occupied with the remnant of the formative osteoblasts (see Fig. 3). In bone, these osteoblastic remnants occupying the lacunæ are protoplasmic; whereas in cementum the majority of them are protoplasmic, while in many instances those remnants partake of the nature of uncalcified formed material. There are, therefore, no spaces or “lacunæ” in the living state, and those negative histological elements are to be found only in sections of dried bone and cementum (see Fig. 4).

FIG. 3.

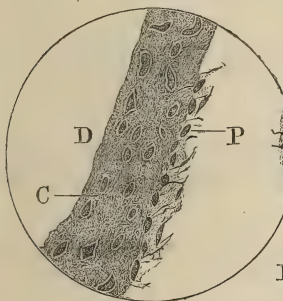


FIG. 4.

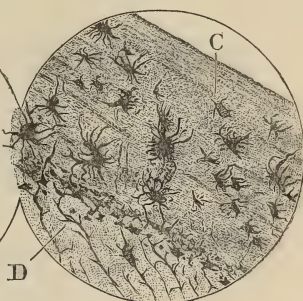


FIG. 3.—This is from a drawing of human cementum, showing the protoplasmic contents of the “lacunæ.” These are identical in appearance with the contents of the lacunæ of the adjacent bone (not shown). At P is seen a portion of the periosteum with its protoplasm-osteoblasts. The specimen is a portion of a tooth and jaw, and, being decalcified, the canaliculi and laminae are not visible in the section.

FIG. 4 represents a section of dried human cementum. The black lacunæ with the radiating canaliculi are distinctly shown, so are the laminae. D, dentine; C, cementum; P, periosteum.

The lamination of the cementum is parallel to the long axis of the tooth. In transverse section this lamination is seen to constitute a series of concentric rings around the dentine or tooth substance. The outer layer is denser than the subjacent portions, and is quite devoid of lacunæ. On the surface the tissue is finely nodular, and like unto an infinite number of minute and perfectly fused globules. When we come to the development of the tooth-tissues the cause of this will be made apparent.

The inner surface of the cementum is closely applied to, and inseparably connected with, the dentine of the root.

Where the cementum is thin, as where it approaches the neck of the tooth, neither lacunæ nor canaliculi are present. Indeed, the lamination is scarcely visible, so that it has an almost structureless appearance.

Sharpey's fibres are also to be found in cementum. This fact, their origin, significance, and the manner of demonstrating them, I pointed out in Lecture II.

The foregoing description of human cementum may be regarded as that of a type tissue. But, as already stated, there are to be found numerous modifications of that structure in the animal kingdom; and in many instances the analogous and homological tissue has little histological resemblance to the "type-tissue"

Dental Surgery and Medicine.

SECONDARY HARD FORMATIONS IN PULP CAVITY— THEIR PHYSIOLOGY AND PATHOLOGICAL SIGNIFICANCE.

A paper read before the Odonto-Chirurgical Society of Scotland on
February 10th, 1881.

By GEORGE W. WATSON, L.D.S. Edin.,
Surgeon to the Edinburgh Dental Hospital, and Lecturer on Dental
Surgery and Pathology at the Edinburgh Dental Hospital
School.

ON the completion and calcification of a tooth, the central vascular and nervous mass called the pulp is completely enclosed to the extremity of its root in hard tissues; but, nevertheless, this pulp contains in itself all the elements (in the odontoblast cells) for the future development of secondary

dentine, and we can therefore readily understand the frequent occurrence of these formations in the pulp cavities of teeth. These new growths differ somewhat in their anatomical characters from that of normal dentine, and are divisible into varieties. They were first recognised by anatomists of the previous century. J. Hunter ('Natural History of the Teeth') says in regard to them:—"In teeth which are worn away by attrition that portion of the pulp cavity adjacent to the abraded surface becomes filled with a new substance, which occupies the centre of the part worn away, and is generally softer than the rest of the tissue of the tooth." Bell, Rousseau, Bertin, Owen, and others, met with these hard formations, both in human teeth and those of animals, but no one gave a minute anatomical description of them till Mr. Tomes took the subject up. Mr. Salter, in 'Guy's Hospital Reports' for 1853, treats of osteo-dental formations in addition to simple calcification of the pulp and granular calcareous deposits, and subdivides them, according to the anatomical characteristics they exhibit, into dentine of repair, dentine excrescence, and osteo-dentine, which excellent arrangement I shall keep by in describing them (diagram shown explanatory of this arrangement):—1st. Dentine of repair. As we have already seen, this variety was recognised and known more than 100 years ago, but only as a result of abrasion, and is very interesting to us as showing the *vis medicatrix naturæ* exhibited by such hard tissues as dentine. This particular form of secondary dental deposit can be studied by making careful sections of teeth, incisors, canines, or premolars, affected by *chronic caries*, abrasion, or erosion. From the tabulated list of 1000 teeth which I have cut up and examined (teeth, I may remark, obtained from the Dental and other hospitals, the ages of patients from whom they were extracted varying from youth to old age) I find dentine of repair to be pretty prevalent, especially in teeth of a hard texture. Soft, carious teeth, unless prepared for and protected by a single filling, owing to the rapidity of their disintegration, get very little chance to deposit a layer of secondary repair tissue. The filling, on the other hand, while protecting from the oral fluids, sets up a slight irritation in that part of the pulp opposite the lesion, which, in the majority of cases, results in the renewed activity of the odontoblast cells, and the formation of a layer of secondary dentine, thus giving the tooth some chance to recover itself. Dentine of repair, then, is produced when, as a result of injury or disease, a portion of the protecting cap of enamel is removed, thereby exposing the underlying highly sensitive dentine to irritation—this

impression being, doubtless, conveyed to the pulp by the bioplasm contained in the dentinal tubules exciting the odontoblast cells to renewed productivity and the formation of compensatory tissue. This is not, however, invariably the case, as you will see from the specimens handed round. The amount of this tissue deposited is proportionate to the extent of the injury at any particular part, and registers its progress by distinct laminations. It is always adherent to, and in direct continuity with, the primary dentine, and always forms on that part of the pulp cavity next the lesion, is separable from the pulp, distinguishing it from osteo-dentinal deposits, which are invariably found entangled in the pulp, and, like excrescence, generally commence towards the radical end of the tooth. Repair tissue was thought for a considerable time to occur only in teeth of elderly persons, very much worn. This however, has been proved to be incorrect by Mr. Salter, who has shown that this pathological condition may be present as a result of disease or injury at any age, which accords with my own observations on the subject. That peculiar condition of the dentine of the roots of some teeth, called horny dentine, and produced by chronic periostitis, is also an indication of the formation of similar tissue, consisting, as it does, of a filling up of the dentinal tubules with secondary dentine, giving it a yellowish and semi-transparent appearance (microscopic section shown). In teeth worn down by attrition, and in the translucent zone of caries, the same condition exists. As you will observe from the specimens passed round, the amount deposited varies considerably. When the amount is large, and there are present other varieties of secondary dentine, coalescence takes place, and the pulp cavity becomes obliterated. Dentine of repair, as an effort of nature to limit diseased action, is extremely interesting to us in view of pulp capping, which I think should be more universally adopted, instead of devitalising the pulp on the slightest exposure, as is too often done I am afraid, and thus very considerably limiting the usefulness of the tooth for future work. The subject of repair tissue compensatory of disease or injury to the teeth might, I think, form a very good and profitable subject for discussion at some of our future meetings.

Dentine excrescence is a much rarer condition than the previous, and, by rights, should be classified under odontomes or tumours of the hard tissue of the teeth. This variety consists of little nodules of secondary dentine, varying very much in form and number, attached to the walls of the pulp cavity of teeth, which may be otherwise healthy and free from disease. This condition is present likewise in the roots of

some teeth, the crowns of which are the subject of some lesion, whether the result of injury or disease. Their presence in the pulp cavity seldom causes any inconvenience, but, as Mr. Salter and others have shown, they are sometimes associated with neuralgia of a very severe character. Mr. Salter figures and describes (in his 'Dental Surgery and Pathology') a very good specimen of this lesion, which is very similar to one I have been fortunate enough to come across. It occurred in an upper wisdom tooth, the history of which I shall just detail. The patient, a military gentleman, aged about fifty, called on me, suffering from severe neuralgia, supraorbital and temporal, which he thought might be caused by a third upper molar. It was carious, but not to any great extent, on the masticating surface, and painful on tapping with a steel instrument. He wished it extracted, which I did. This did not cure it at once, as he experienced great pain of a neuralgic character for a considerable time after extraction. On making a longitudinal section of the tooth, I found the pulp cavity very small, and an oval excrescence growing from the side of pulp chamber, and still further narrowing its space and pressing aside the pulp. As you will observe, gentlemen, from the tooth which I herewith hand round, there is a carious cavity in the crown, which has not penetrated very far, having been arrested by the calcification of the contents of tubules, producing caries carbonacea of old writers. The excrescence is semi-transparent, and of a yellow colour; the tubules nearly to the full extent of the excrescence pass upwards towards the neck of the tooth, presenting the same appearance and colour, which is due to calcification of their contents. That this excrescence, pressing on the highly sensitive pulp, was the cause of the neuralgic pain I have not the slightest doubt, as the pain ceased entirely an hour or two after the tooth's removal. Any inflammation of the pulp, however slight, we can readily understand, would, by the enlargement thereby produced, crush the delicate fasciculi of nerve fibres against the sharp and prominent excrescence, and lead to the reflex nervous pain complained of. Another specimen of excrescence, occurring in an inferior premolar, I hand round for your inspection. It was extracted about a month ago from the mouth of a young woman, aged about twenty-three, and was associated with severe intermittent neuralgia, which had continued for a considerable time, though various remedies had been tried. As you will observe, the inner cusp and a considerable portion of the crown is destroyed by caries exposing the pulp, which I found infiltrated with pus. On examining the pulp cavity, there was found growing from the lingual wall a flattened and sharp-

pointed excrescence, which must have caused constant irritation of the highly sensitive pulp, ending in acute pulpitis and suppuration. To show you the infrequency of these growths, I may state that, out of the 1000 teeth examined, I only came across 17 of excrescence; and I hand round for your inspection a box containing a number of teeth exhibiting this lesion; also a microscopic slide showing a mounted section of part of a tooth with this growth attached to floor or pulp cavity. When put under the microscope, you will observe there is an irregular line of demarcation between the primary and secondary tissues, the boundary layer of the primary dentine being distinguished by the uniformity of the tubules extending from it, while the tubules of the new formation are very erratic in their course, and meet those of the old dentine generally at an acute angle, and here and there at nearly right angles. In dentine of repair, on the other hand, the tubules of secondary dentine generally correspond in direction to those of the primary tissue. In this specimen there are also present several lacunar-like cavities, with tubes running out from them. Dentine excrescence, as Mr. Salter has shown, unlike the other varieties, takes its origin at a time prior to the completion of the primary dentine of tooth, their histological structure showing this; and it will depend very much on the general health of the patient and tooth as to whether this abnormal condition will be the cause of much suffering or not. A very common position of these growths in molars and bicusps is on the floor of pulp cavity between the roots, or at the entrance of the root canals. That there have been so few recorded cases of dentine excrescence is due, I have no doubt, to the fact that the pulp chambers of teeth are so seldom examined after extraction. If this were oftener done, we would, I daresay, be able to comprehend and explain more readily some of those cases of obscure tooth pain which are sometimes so puzzling to us.

Osteo-dentine, as its name implies, is a form of secondary dentine, combining both the characteristics of bone and dentine. It is developed by the gradual calcification of the various tissues of the pulp, nerves, blood-vessels, connective tissue, cells, and nuclei. It usually contains blood-vessels, round which there are sometimes formed an arrangement of the tissue, analogous to that of the Haversian systems in bone, agreeing also in some instances with this tissue, in the presence of lacunæ. The histological elements of the pulp seem to be calcified promiscuously, the blood-vessels being the last to succumb, some of them remaining patent to the last, and forming the axis of the dentinal Haversian systems. If we wish to observe the appearances presented by the pulp

in the early stages of calcification, we have just to examine with the microscope a prepared pulp taken from a slightly carious tooth, such as the one I show here. On examination of it, you will observe, running along the pulp, numerous bundles of nerves, separated by clear intervals, while scattered promiscuously all over the pulp, are great numbers of small, dark, outlined cell-like bodies, lying parallel to the nerves, and of an elongated oval form. These are the calcification islands; and it is by the multiplication, enlargement, and coalescence of these, involving more and more of the structure of the pulp, that there is produced under favorable circumstances osteo-dentinal formations. It may be here mentioned that the presence of islands of calcification in the pulps of carious teeth is, to a greater or less extent, universal, but it is only under favorable conditions, in very dense teeth, affected by caries, for instance, that there is a development of osteo-dentine. As calcification of the pulp progresses, the calcification islands, which at first were easily separable from the pulp, become more coherent, and eventually are fused together, and it is only at this stage that good and intelligible sections can be made. This variety of calcified tissue differs in many important particulars in its development from that of normal dentine, or dentine of repair. In these, the calcification is limited to the soft tissues of dentine, viz. the odontoblast processes from the peripheral cells, and the intertubular substance; their calcification, moreover, is globular. In osteo-dentinal formations, and the ordinary varieties of pulp nodules, on the other hand, the calcification islands are scattered promiscuously through the various tissues of the pulp, invading and ultimately solidifying them all. Osteo-dentine may exist in single or multiple systems, although, on the whole, the second is the more common of the two. I have here a section of a very perfect specimen of the single system of secondary dentine, removed from a carious inferior molar, also one with several systems. On examination with the microscope, you will notice the striking resemblance between osteo-dentine, and Haversian systems of bone tissue. The systems vary greatly in size and shape, and are separated from each other by a tissue analogous to primary dentine, but containing very few dentinal tubules. Each system has in its centre a medullary canal, containing several protoplasmic bodies, or the remains of a capillary vessel. Around the central canal a system of lamellæ are arranged, sometimes pretty regularly, and the lamellæ are traversed by delicate radiating canaliculi, closely resembling those of bone tissue. In the first specimen shown you will observe the

presence of several lacunæ, their canaliculi communicating with the surrounding tubules, which is rather a rare condition of this tissue. The transparency of osteo-dentine is due, to a certain extent, to the filling up of the tubes with secondary dentine, but more particularly to the fact that there are fewer tubules in this than in any other of the varieties of secondary dentine, which condition, Mr. Salter mentions, is brought about by the odontoblast cells being the only elements of the pulp tissue which can produce tubules, the calcified nerves, blood-vessels, and connective tissue not being able to develop them. The osseous tissue of osteo-dentinal formations is supposed to be developed from the connective tissue of pulp, which has a tendency to ossification.

Besides osteo-dentinal formations, we have the ordinary and commoner varieties of pulp nodules, also developed from the intrinsic calcification of the pulp. In size they vary much, being, in some instances, microscopic, in others filling up nearly the whole pulp cavity or root canal; in form they are flattened, round, wedge-shaped, conical, berry-like, or warty (specimens shown). A good specimen of pulp calcification presents to the naked eye a yellowish-amber colour, a certain degree of transparency, and a hardness nearly equal to that of dentine. The exterior, invested by the glistening pulp membrane, always has a rounded outline, and generally is nodulated. They are developed in a similar manner to that of osteo-dentine, but present no regularity in their histological structure, showing sometimes a concentric arrangement; at other times they are composed of irregular masses of secondary tissue, with very erratic and contorted tubules, and occasionally exhibit the remains of vascular canals. Temporary teeth sometimes have their pulps calcified. In some cases we find small isolated and uncalcified portions of the pulp remaining (example shown), which is apt to prove troublesome, especially in roots, when preparing for pivoting. When, however, complete calcification of the contents of root canal takes place, there is not the slightest pain produced in drilling them out. The same holds good in regard to the preparation for filling of senescent teeth, which seldom exhibit much sensitiveness, owing to the pulp being more or less calcified. Juvenescent teeth, likewise of a hard texture, and which are slowly affected by caries, show the same tendency to calcification of the pulp, and therefore insensitiveness. Another, and lower variety, of hard formation occasionally found in the pulp chambers or root canals of teeth, is that of granular concretion. This is a condition analogous to what obtains in other organs or tissues of the

body, for example, upon the pleura, or in atheromatous arteries. It sometimes is an accompaniment of atrophy of the pulp, and is found in the shape of roundish calcareous grains in the connective tissue of pulp. In the pulps of roots the calcareous granules are generally more completely arranged than they are in the main chamber, and are frequently converted into a solid mass (specimen exhibited). The chalky white nodules are rendered much more distinct in the dried condition. The nerve trunks and walls of blood-vessels of pulp sometimes get coated over with this concretion, which speedily obliterates their function. They differ chemically from ordinary pulp calcification, HCl speedily dissolving them and liberating carbonic acid gas, leaving an ill-defined network of albuminous-looking tissue behind, their probable composition being carbonate and phosphate of lime, the first predominating, development occurring round some cell which, in all likelihood, forms the nucleus of the deposit. This deposit in the pulp cavity is degenerative, and therefore pathological, and must in some cases produce great pain by constantly irritating the delicate nerves of pulp. In regard to this, however, we have very little information, and must leave it for future investigators to decide.

Having now discussed all the different forms and varieties of secondary hard formations in the pulp cavity, I will now refer to their comparative frequency, with and without the accompaniment of other lesions, and to show this I have constructed a table of classification.

Out of the 1000 teeth examined there were 768 carious; 135 were worn down by abrasion, 49 of which had no appearance of calcific changes in pulp, the other 86 having it present to a greater or less extent; 7 were grooved by erosion, 4 of them having dentine of repair present, the other 3 had none; 35 were sound, or what would usually be termed sound, 18 of which were unaffected by calcification, the other 17 having one or other of the varieties of secondary formation present, while of dentine excrescence there were 17. On enumerating those which had and those with no calcification I find that those without any number 564, while those that had number 432, the proportion, therefore, being 43·2 per 1000 with calc., and 56·4 per 1000 without.

Kinds of teeth.		Carious.	Abrasion.		Erosion.		Sound.		Excrecence.	Total with intr. calc. rep. and traces.	Total with no calc.
			No calc.	Calc.	No calc.	Calc.	No calc.	Calc.			
Molars	758	623	12	37	0	0	4	6	16	337	422
Bicuspid	124	97	15	6	1	4	5	5	1	39	85
Canines	40	18	6	13	1	0	3	2	0	16	21
Incisors.....	78	30	16	3	1	0	6	4	0	40	36
Grand totals...1000	768		135		7		35		17	432	564

The question now comes to be considered, have these hard formations in the pulp a physiological or a pathological significance? It is a very difficult matter sometimes to differentiate between a physiological and pathological phenomenon, but I think in this case there is a preponderance of evidence in favour of its being pathological. Some think that because secondary hard formations, nodular or stalactitic, are found so frequently in the pulp cavities of the lower animals, such as the elephant, horse, or hippopotamus, without, so far as we know, producing any uneasiness, they should therefore be termed physiological. This, however, I dispute, on the ground that they are never present except in teeth which have been subjected to considerable abrasion, or are the subjects of some other lesion. Moreover, if we take into consideration how slight an injury (the removal by fracture or abrasion of a small portion of the enamel, for instance) is productive of great pain, which can only be caused by the irritation having been carried to the pulp by means of the bioplasmic contents of the dentinal tubes, we shall find that even though the irritation may be very slight, if long continued it will excite the odontoblast cells to renewed activity, and the deposition of repair tissue or the calcification of the pulp. In perfectly sound teeth, so far as my observation goes, secondary formations are never found. On looking over the table, you will notice the larger proportion of the teeth—in fact, I might almost say the whole of the teeth—were affected by some lesion or another. The most of those termed sound show some evidences of abraded tissue or slight fissure. There are some cases, however, as you will observe from my specimens, where a tooth exhibiting both abrasion and erosion presents no indication of calcific changes in the pulp; yet this is exceptional, and may have been owing to the early destruction of the pulp, as a result

of the lesions of the dentine, or from embolism of the vessels of the pulp, &c.

Another point in favour of their pathological origin is the fact that their presence in the pulp produces more or less of neuralgic pain. To exemplify this, I here show you two or three out of a number of cases I have come across, where the presence of secondary hard formations in the pulp was the cause of severe neuralgic pain. Case No. 1, Lady, æt. 40. Had suffered greatly for two years from neuralgic pains in head and neck, which she attributed to a M. $\frac{1}{2}$, her Dentist in England having refused to extract it, although asked repeatedly to do so, averring there was nothing wrong with it. On examination, I discovered a small amalgam filling on one of the approximal surfaces, while the encircling gum seemed very loosely adherent to the neck of tooth. On tapping the tooth it was pretty painful. Suspecting the presence of pulp nodules, I decided to extract the tooth. On splitting open the pulp cavity the cause of the trouble was at once apparent, calcification of the entire pulp having taken place, with the exception of the radical portions, upon which this calcified mass must have pressed, and caused great irritation. The cementum of palatine root was dead, and had a deposit of tartar upon it, nearly to the extremity of root. The pathology of this case would probably be this. The gradual deposit of tartar on palatine root would first irritate the periosteum, and through it the pulp, which would speedily set up calcific changes in this organ; as the tartar spread over the root, the periosteum, along with the cementum, would be destroyed; the stopping in all probability would also produce a certain amount of irritation. Case No. 2, Man, æt. 38, had suffered great pain for three weeks in M $\frac{2}{2}$, accompanied by temporal neuralgia. The tooth, excepting a slight fissure on crown, appeared perfectly sound and healthy, and I wished him to try it a little longer, but he would not, so I extracted it. The tooth, on account of its density and hardness, I had the greatest difficulty in splitting, on accomplishing which I found three pretty large nodules in the pulp cavity, which, I have no doubt, were the cause of all the suffering, as there has been no return of the pain since the extraction of tooth, now more than a year ago. Case No. 3, Female, æt. 18, Tooth M $\frac{1}{1}$, carious on distal surface, without exposure of pulp. Patient had suffered very severely for four months from temporo-occipital neuralgia, which she thought arose from this tooth. The teeth being crowded I decided to extract. On opening pulp cavity there was exposed to view a large calcification of the pulp.

There has been no return of the pain here either after extraction.

The most frequent cause of calcific change in the pulp is caries; then comes periostitis, abrasion, and erosion. As we all know, neuralgia is a frequent accompaniment of chronic inflammation of the pulp. In all such cases which I have examined, I have invariably found small nodules present in the pulp, and have often wondered whether they have not a good deal to do with the neuralgia incident to such cases, and would like to hear the opinions of the members in regard to this.

Hospital Reports and Case-Book.

A CASE OF REFLEX PAIN.

By WALTER SHEPHARD, Esq., L.D.S.

THE following case of "Reflex Sensation," being so definite, induces me to send it to your journal as one of interest.

A patient, aged 36, visited me for the purpose of having a first inferior molar extracted, having, as he described, "suffered continuous pain in it for some days." Upon examination I found the tooth perfectly sound; its neighbours also being perfect and alike insensible to various tests, led me to suppose the pain to proceed, by "reflex action," from its antagonist upper tooth. On examining the first superior molar it was in appearance "sound," but on forcing a probe between it and the second molar, I detected a deep-seated cervical cavity; the tooth was also painful to tests. Still, the patient tenaciously held to the idea of the pain proceeding from the lower tooth. On inhaling cold air he described the pain in it to be "intense," also that the tooth felt "raised in its socket," and that "he had never suffered any inconvenience in the *upper* tooth."

The case was a most decided one of reflected pain, and on extracting the superior molar I found it deeply decayed posteriorly, with an exposed pulp. The extraction afforded instant relief.

10, Devonshire Terrace,
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British Journal of Dental Science.

LONDON, MARCH 1, 1881.

THE proceedings of the General Medical Council, reported in our last issue, have been commented on at considerable length by all the medical journals, the general tone of the remarks showing but little appreciation for the collective wisdom of that body. We reproduce below, for the edification of our readers, articles on this subject taken from the 'British Medical Journal,' the 'Lancet,' the 'Medical Press and Circular,' and the 'Pharmaceutical Journal.'

That which appeared in the 'British Medical Journal' is a temperate statement of the case from the point of view of the British Dental Association, and is in marked contrast to the decidedly intemperate utterances of the 'Medical Press.' The writer appears, however, to lay great stress upon two points which we do not consider at all material to the issue. First, he assumes that the opinion given by Mr. Bowen, whom the Council consulted last summer, was favorable to the interpretation of the Act which was put forward by the British Dental Association on the authority of Mr. Fitzgerald. This assumption appears to us to be opposed to all probability. If we suppose that "the opinions (of Mr. Fitzgerald and Mr. Bowen) were not in any material degree dissimilar," we must also believe that the Council was strongly opposed to the demands of the British Dental Association, and determined to thwart them if possible. But it has been evident throughout that, at all events, a majority of the Council was favorably disposed towards the Association, and quite willing to meet its wishes if only this could be done with a sufficient show of authority. But if, on the other hand, we suppose that the opinion of Mr. Bowen, although agreeing on some points with that of Mr. Fitzgerald, did differ from it materially in others, or that its dicta on some crucial points were expressed with so much

hesitation as to make it valueless as a basis for decided action, then it is evident that to have published such an opinion would only have added greater uncertainty to an already sufficiently complicated question. Under these circumstances the Council did well to withhold the document and to postpone action until it had obtained such legal directions as would fully absolve it from undue responsibility. When these directions were received they proved to be opposed to the demands of the Association, and the Council acted upon them with evident unwillingness; had they agreed with the views of Mr. Fitzgerald we believe they would have been received much more readily. We leave our readers to judge which is the more probable explanation, that put forward in the report of the Business Committee of the British Dental Association and repeated in the article we are now referring to, or that which we are ourselves disposed to favour. We hope that one of these days all doubt may be set at rest by the publication of Mr. Bowen's opinion; meanwhile, we think it would have been wiser to have ignored it altogether.

Then the writer goes on to point out that the Association, or rather its leaders, in their former character as members of the Dental Reform Committee, is not responsible for the clause on the interpretation of which all this labour has been spent. This is true enough, but although the Association is not responsible for the clause, it is responsible for the line of action taken upon it. It is responsible for having neglected the real point to be decided, viz. what constitutes *boná fide* practice, in order to follow out what the Business Committee now admits to have been "a secondary issue." The Committee say, in their report, "The Register still requires to be cleared of the names of those who were not in *boná fide* practice on July 22nd, 1878, but who gained entrance thereon by fraud." But this might as well have been done first as last, and the delay which has taken place has given the intruders an advantage of which they will not be slow to avail themselves.

The 'Lancet' article, which is chiefly remarkable for a certain ponderous affectation of wit which the Editor is rather fond of assuming, need not detain us, so we will devote

our remaining space to a brief comment on the highly amusing extract from the 'Medical Press.' Not that the Editor of that journal intends it to be amusing, he is evidently very much in earnest. It will be remembered that he took some pains in searching the 'Register,' and sent in a list of his own to supplement that of the Association. As a specimen of smart writing this article is excellent, but, as usually happens in this style of composition, the writer overreaches himself and misses his mark. We cannot afford space for a detailed criticism, and this is not necessary; one example must serve as a specimen of the whole. The writer quotes the 13th and 35th Sections of the Act, relating to fraudulent registration, and then quotes Dr. Aquilla Smith and Dr. Acland as having stated that it was no part of the Council's business to prevent fraudulent registration. If our readers will refer to the report of the proceedings, they will find that what was really said was this, that the Dental Committee having stated in its report that it could not impute legal fraud to any of those who had obtained registration, the Council was bound by that statement; else, as Mr. Ouvry remarked, it must be prepared to resift all the evidence on which the report of the Committee was founded. Had the Dental Committee found that fraud had been practised, the Council would not have hesitated to act upon the finding.

We have no wish to constitute ourselves the champion of the General Medical Council; it has on more than one occasion fairly exposed itself to adverse criticism, but we do not consider that it has earned the unmeasured abuse which the Editor of the 'Medical Press' thinks fit to heap upon it. We are much more inclined to agree with the Business Committee of the British Dental Association, who state in their report—"Of this we may feel assured, that the Medical Council have discharged their duties in the administration of the Dentists Act faithfully and to the best of their ability, and we owe them our thanks for the thorough manner in which the cases submitted have been investigated." This was also the opinion of the whole Executive Body, as is shown by the resolution which will be found at p. 236, and

if they can bear their disappointment calmly, we do not see why the Editor of the 'Medical Press' should not be content to do the same.

Literary Notices and Selections.

THE DENTISTS ACT AND THE MEDICAL COUNCIL.

WITHOUT burdening our pages with the details of the proceedings taken this week by the General Medical Council in the matter of the Dentists Act, we may briefly summarise and explain the position of affairs.

The Dentists Act requires that "any person who is at the passing of this Act *bonâ fide* engaged in the practice of Dentistry or Dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy, shall be entitled to be registered under this Act." The British Dental Association took counsel's opinion upon the following points: (1) Whether the *bonâ fide* practice applied equally to the practice of Dentistry and pharmacy? and, if it did so apply, whether a person who had declared himself to be engaged in the *bonâ fide* practice of Dentistry with pharmacy, but whose name did not appear in the Chemists and Druggists' Register, and who could not, therefore, without legal offence, practise pharmacy, was entitled to remain on the Dentists' Register. (2) And whether a person practising Dentistry in conjunction with some other calling than the three specified in the Act, was entitled to remain on the Register? The following answers were given by counsel.

(1) The *bonâ fides* applies equally and separately to the practice of pharmacy; and an assistant in a chemist's shop, not registered in the Chemists and Druggists' Register, cannot be regarded as in the *bonâ fide* practice of pharmacy within the meaning of the Act. A person who declared himself to be engaged in the practice of Dentistry in conjunction with pharmacy, but whose name was not in the Chemists and Druggists' Register, is liable to have his name erased from the Register.

(2) A person who, being at the passing of the Act engaged in the practice of Dentistry, and also in some business not mentioned in the Act, declared himself to have been engaged in the practice of Dentistry separately, is liable to have his name erased from the Register.

On the strength of this opinion, the British Dental Association brought before the Medical Council, in July last, the names of three hundred and seventy-six persons who obtained registration by declarations which, in the opinion cited, were, in respect to the practice of pharmacy, incorrect or fraudulent. The list was accompanied by a copy of Mr. Fitzgerald's opinion. It appeared from the Council's minutes, that the opinion of Mr. Charles Bowen had been taken, shortly before he was elevated to the bench, upon the reading of certain clauses of the Dentists Act. The request preferred by the Association in November, 1879, that Mr. Bowen's opinion, together with Mr. Fitzgerald's, should be published, was refused.

At the meeting of the General Council, July 15th, 1880, it was determined, by a vote other than unanimous, that the two opinions should be read with closed doors, and that they should not be entered on the minutes. A secret, in the knowledge of which a large body of men are deeply interested, will be guessed; and the belief that the two opinions were not in any material degree dissimilar would probably be confirmed by their publication.

The alleged cases of incorrect registration were referred to the Dental Committee for the determination of the facts; and the private reading by a public body of the opinion of an eminent counsel affecting public interests has been followed by the production, on Thursday last, of "opinions" which completely traverse those upon which the British Dental Association acted. In Case 2, the joint opinion of the Solicitor-General and Mr. Mackenzie is "that the words '*bonâ fide* engaged in the practice of Dentistry or Dental surgery, either separately or in conjunction with medicine, surgery, or pharmacy,' have no reference to any legal qualifications to practise medicine, surgery, or pharmacy. They are simply intended to indicate that, if the person seeking registration is qualified to be registered by being *bonâ fide* in practice as a Dentist, he is to be none the less so entitled because that is not his exclusive occupation, but is only carried on by him in conjunction with the practice of medicine, surgery, or pharmacy." Again, in Case 1, the opinion given jointly by the Solicitor-General and Mr. F. Vaughan Hawkins is: "We think that the name of a person cannot be removed from the Dentists' Register solely on the ground that he carries on some other trades, though the fact of his doing so might be material in considering whether he was *bonâ fide* engaged in the practice of Dentistry at the passing of the Act."

The Medical Council have withheld from their minutes

the opinions of Mr. Charles Bowen and Mr. Fitzgerald, and have published and acted upon the opinion of Mr. Herschell and his colleagues Mr. Hawkins and Mr. Mackenzie. Counsel's opinions do not determine the law; and, in the present case, it is probable that a conclusive settlement of the question might require proceedings to be carried even as far as the House of Lords.

The evil which the Association sought to abate is, at worst, a temporary one, in no way affecting the principles of the Act; and the sound common sense which has characterised their proceedings throughout is shown in the ready acceptance, as a settlement of a doubtful question, the determination of which has been deemed conclusive by the Medical Council.

The registration clauses of the Association Bill, when it left the Commons, were clear enough. They required that "no name shall be entered in a register unless a registrar be satisfied by sufficient evidence that the person claiming is entitled to be registered." The more complex registration sections from the Government Medical Bill were, with the approval of the Medical Council, forced upon the Dentists as a condition of the Bill passing; and they did well to accept the changes in what is called the machinery of the Bill when made conditional to its success. As the matter now stands, the name of a person will be removed from the Register only on the ground that he was not in *bonâ fide* practice at the passing of the Act, or of misconduct. The decision will doubtless be a disappointment, not only to the Dentists, but also to their well wishers on the Council. To the Dental licentiate it is of small moment. The entry of his qualifications attests his professional competence; but to those educated and skilful practitioners who have neglected to take the registrable qualification lying within their easy reach for the last twenty years, and within their reach even now, the Solicitor-General's reading of the Dentists Act will be a matter of regret. From these, sympathy cannot be altogether withheld; but, at the same time, they must be reminded that very many of their fellow-practitioners avoided the position by the acquisition of a professional qualification; and that the remedy for the evil of being registered, on the ground only of having been in practice before July 22nd, 1878, still admits of application. Wholesale erasure, on a secondary count, has unexpectedly failed; but there will be no difficulty in obtaining the removal of a name from the Register by the production of conclusive evidence that the person was not in practice at the passing of the Act.

Other questions respecting the administration of the Den-

tists Act have been considered by the Solicitor-General, to the answers to which we may have occasion to refer. The opinion, for instance, states that chemists' apprentices cannot claim registration; and the Dental Committee points to their existence in a list of 115 names contained in their published report; but the Council—perhaps from an oversight—have taken no visible steps towards their removal from the Register, on the authority of an opinion upon which they have not on other points hesitated to act.—*Brit. Med. Journ.*

THE MEDICAL COUNCIL IN A "BOWING" ATTITUDE.

THE feeling of the medical profession in reference to the Dentists Act and the Dentists' Register, and especially in reference to the readiness with which the General Medical Council undertook the administration of the Act, has always been one of great humiliation and regret. That feeling will be intensified by the report of the proceedings of the Council at its one day's sitting of Thursday, the 3rd inst. The Council, it will be seen, was entirely in the hands of the lawyers. In Mr. Simon's apt words, "they bowed unreservedly to legal opinion, but he hoped the resolution would be so framed as to show that the Council was simply acting mechanically in obedience to the law." This "bow to the law" is indeed unreserved. Let us see what were the doctrines bowed to so meekly and without an attempt at resistance by the distinguished gentlemen constituting the Medical Council. Our readers will remember the deluge of Dentists, or professed Dentists, which succeeded the passing of the Act. The number registered on August 1st, 1879, was 5289, double that which was contemplated by the gentlemen who so confidently undertook this piece of legislation. Of this number 483 had licences in Dental surgery from British Medical Corporations! The great majority were admitted to the Register on Section C of Clause 6, which entitles to registration *any person who, at the passing of this Act, was bona fide engaged in the practice of Dentistry or Dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy.* It was over the use and construction of this clause by the Council that such humble and mechanical "bows" had to be made by Mr. Simon and his colleagues at the late meeting. It is difficult to say whether the persons registered by the Council or the Council itself were

in the greater flutter. The time of meeting was, of course, most inconvenient. The cost of meeting we know, on the authority of the treasurer, will be four or five hundred pounds. But all this had to be disregarded to settle the great questions arising out of Section C of Clause 6, which the President said affected the accuracy of the Dentists' Register in over five hundred cases. What were these questions? For a full answer to this we must refer our readers to the report of the meeting. We will only here say that they were vital to the respectability of the Register. They were of this kind: What constitutes practice *boná fide* as a Dentist? Is a man justified in declaring that he is in *boná fide* practice as a Dentist when, in reality, he is only acting as an assistant to one who is so? Is "pulling out" teeth alone, by the hundred in the year, enough to constitute practice as a Dentist? Can a man be said to be in practice as a Dentist whose primary business is that of hairdresser, his secondary business that of tobacconist, and his third function that of tooth-drawing? Can a man be said to be in practice as a Dentist *separately* who practises it in association with such businesses as the above? Can a man be said to be in the practice of Dentistry in conjunction with the practice of medicine, surgery, or pharmacy, whose name is not to be found on the Medical Register, the Pharmaceutical Register, or the Register of Chemists and Druggists? Finally, is the Registrar acting wrongly in putting into the Register a column describing the calling in connection with which an applicant said he was practising Dentistry? These were great questions affecting the respect to be paid by the medical profession and by the public to the Dentists' Register. We regret to say that the answer given to them all by counsel was exactly the opposite of that which, we presume, the framers of the Dentists Act hoped and expected, and, worse still, that the Medical Council accepted with scarcely any demur the decision of counsel. Thus the Register is to remain unpurged. The Council have resolved to keep on the names of hundreds of persons which have been challenged by the "British Dental Association," and they have the appearance of accepting the doctrine that men are to be considered in practice as Dentists who were essentially hairdressers, and in practice as chemists, in spite of not being on any legal register of chemists, and not even in business as chemists.

This is, indeed, a humiliating position for a great Council of Medical Education to have come to. It has revived the race of barber-surgeons, which we had thought extinct. Mr. Simon somewhat ingeniously, and with a dash of

severity, threw the blame of all this on the promoters of the Dentist Act, who, he said, no doubt thought they were securing that the new race of Dentists were to be men in *bonâ fide* practice first, either as Dentists *separately*, or actually registered as Dentists, in connection with medicine, surgery, or pharmacy. But are Mr. Simon and Dr. Quain quite right in shifting the blame of all this carelessness on the promoter of the Dentists Act? Is it not a fact that the clauses under which the deluge has happened were taken from the Lord President's Bill? Is it not a fact that this was done at the suggestion of the Medical Council? and that the Medical Council gave to this great subject only a fragment of time, and in this fragment expressed its willingness to accept the Bill, containing the clauses, amongst others, which have worked to the production of such a loose and worthless Register. The Council may well bow, not only mechanically, but morally, under such a responsibility.—*Lancet*.

THE DENTAL ACHIEVEMENTS OF THE MEDICAL COUNCIL.

THE one-day meeting of the General Medical Council which assembled on the 3rd inst. was, we venture to assert, one of its most satisfactory deliberative sessions, and, in the brief period of its assembly, it served the medical profession more efficiently than on any previous occasion.

The very fact that it was a one-day meeting was sufficient to commend the sitting to special approval with those who are conversant with the dreary and unproductive wrangles of past times; but the peculiar success of the recent assembly arose from the fact that the Council in a few hours made itself as ridiculous, and displayed as clearly its disposition to shirk its duty, as if it had employed its collective wisdom for a fortnight for that purpose.

The object of this meeting was to cobble up the Dental business, which the Council had reduced to an almost hopeless muddle. First, it had given its official consent to the passing of the Dentists Act apparently without reading it; certainly without realising the fact that it was full of errors and imperfections, which would make its working as law an impossibility, and utterly unconcerned as to the fact that the status of registered medical practitioners was seriously threatened thereby. Secondly, the Council, without taking an adequate legal opinion as to its

powers and responsibilities under an Act which placed upon it duties altogether different from those which it had previously been supposed to discharge, proceeded to register as legally qualified Dentists whole regiments of persons of whom the only thing which could be possibly known was that they were *not* Dentists in any true sense of the word. Thirdly, being pressed with remonstrances against this wholesale licensing of absolutely ignorant persons to practise a surgical specialty at the expense of the deceived public, the Executive Committee became involved in a floundering effort to extricate themselves from the dilemma. First, they erased a number of names from the Register for misrepresentation; then they restored some; then they agreed to condone the misrepresentation and correct the entry; then they concluded to take legal advice; and then, brought to a helpless standstill in the focus of a muddle of their own creation, they decided to summon the full Council, and throw over the responsibility of the mess on them.

Hence the recent meeting. The work to be done at this meeting was to decide two questions in dispute :

a. Whether a person who declared himself to be practising Dentistry "in conjunction with medicine, or with surgery, or with pharmacy," should or should not be removed from the Register upon proof that he was, in a legal sense, neither a physician, surgeon, or pharmacist.

b. Whether a person who obtained registration by declaring that he was "*bonâ fide* in the practice of Dentistry" should be removed if it could be shown that his practice consisted in the drawing (or breaking) of an occasional tooth, and that his actual means of livelihood was some totally different trade, such as hairdressing, or farming.

The necessary proofs on these points were supplied by the British Dental Association in several hundred cases, and that organisation demanded that the Council would do its duty, and expurgate the Register from persons thus fraudulently or erroneously-entered therein; and the Association furthermore submitted the opinion of very eminent counsel that these persons were improperly registered, and that it was the duty of the Medical Council to remove them. Here were two plain questions to answer, and, with characteristic left-handedness, the Medical Council answered neither. On the contrary, they obtained the opinion of counsel (eminent but not the least more reliable than those consulted by the British Dental Association), *not* upon the points which required to be decided, but upon an entirely different matter, *i.e.* the legal propriety of a course which the Council has made up its mind to follow.

It is to the course thus determined upon that we wish to direct special attention, as a clear manifestation, not only of the incapacity of the Council to do its duty, but of the firm determination of that body not to touch any responsibility whatever—duty or no duty—which can be escaped from by any legal quibble, or by any sacrifice, however grievous, of professional interest. The Council had enrolled a great variety of persons as Dentists—some with full medical and surgical degrees; some with special Dental degrees; some with a recognised position as Dental practitioners; some who practised Dentistry in connection with the legal dispensing of medicines; a host who called themselves Dentists on the strength of a brass name-plate of a few months' maturity; and a legion of chemists' boys, hairdressers, and other persons of a surgical calibre which needeth not to be defined. Did the Medical Council set to work honestly to find out who of their registrèes had any right to be on the Register, or had any, even the remotest, claim to call themselves Dentists? Not at all. They serenely decided not to enter on any such vulgar function, but to return the whole number, jewellers, hairdressers, druggists, porters, *et hoc genus omne*, as legally recognised practitioners in Dental surgery. But they did worse than this. Determined that no inequalities of Dental education should ever exist in the future, they declared their intention of levelling down all the well-educated Dental surgeons to the level of these persons, by striking out of the Register and ignoring altogether the degrees in medicine or surgery possessed by the more respectable registrèes and by striking out all words implying a higher walk in the profession, so that no person might, in future, be able to differentiate a surgeon practising Dentistry from a hairdresser who pulls teeth and shaves.

We leave it to the judgment of the profession whether these acts of the Medical Council do not justify us in thanking that conclave, in the name of those who look with longing to its reconstruction, for having done what even the late Dr. Andrew Wood could not find it in him to apologise for—for having displayed with audacity so open—its insolent contempt for its duty, and for both public and professional opinion.

There was, of course, the inevitable opinion of counsel upon which to hang the excuse for adopting such a course; but there was also the equally strong and equally reliable opinion to the diametric contrary. The real motive was that naïvely put into words by Prof. Humphry, who, in moving the Council to act thus, said it seemed very important that they should strike out all superior qualifications or

designations, for it would put an end to all questions which had arisen in such a large number of cases as to whether persons were properly entered upon the Register, or whether they had by misconception or by fraud added the words "in pharmacy," "in medicine and surgery;" *and it would clear away at once the necessity for entering upon the consideration of the large number of cases mentioned in the Report.*

Certain members of the Council, indeed, seem to entertain a strange view of their duty under the Act. The 13th section says: "The Council *shall* cause to be erased . . . any entry . . . incorrectly or fraudulently made." And again, sec. 35 says: "Any person who wilfully procures . . . himself to be registered . . . by making . . . any false or fraudulent representation . . . shall be guilty of misdemeanour."

These clauses seem sufficiently plain, and yet we find the following pronouncements of speakers on this subject:

Dr. Aquilla Smith "assumed that some of these men had acted fraudulently in stating their qualifications, but the Council had nothing to do with that."

The President (Dr. Acland) said "they were not discussing whether persons were guilty of fraud, because that was entirely beyond the province of the Council."

We conceive that it is unnecessary for us to say another word. No detraction could equal in effect the detraction of the Council itself by its own acts, but—being thus forced to give expression to our disgust and indignation in terms which we should not employ under less flagrant circumstances—we feel it our duty to offer our acknowledgments to Professor Turner and Mr. Macnamara, the only members of the Council who seemed to appreciate even remotely the principle that public and professional interest should be superior to legal quirks, and the performance of a solemn duty of trust of greater importance than all the discomforts which the responsibility of performing such a duty might entail upon the Executive Committee. To the Council we say with all earnestness *macte virtute*. On no account take warning from the fate of obstruction in "another place," but fulfil the noble destiny selected by yourselves of working out the "problem" how not to do it. What does it matter that by this single day's proceedings you have estranged the confiding trust of the Dental surgeons, and taught them the lesson of your incapacity which the medical profession has long since learned?

Thus you will conform the character for ingenious incompetency already so well earned, and—let us hope—will continue to devote yourselves to the task of removing from the

public mind the last lingering idea that a Council constituted as at present can have a shred of reason for its continued existence.—*Med. Press and Circular*.

THE DECISION OF THE MEDICAL COUNCIL FROM A PHARMACEUTICAL POINT OF VIEW.

THE sweeping and persistent asseverations of an active party among the Dentists as to the incorrectness of the Dentists' Register appear at last to have given rise to so much doubt as to necessitate the calling of a special session of the Medical Council, at an unusual time of the year, in order that the demand put forward for the removal of upwards of 500 names might be decided upon before the Dentists' Register for 1880 was printed.

It will be remembered that immediately after the appearance of the first Dentists' Register it was pointed out that it contained the names of a considerable number of persons who, although their names did not occur in the Register of Chemists and Druggists, had effected registration under the terms of the Dentists Act as having been, before July, 1878, engaged in the *bonâ fide* practice of Dentistry with pharmacy. It was urged that no person could be correctly described as practising pharmacy who was not registered as a chemist and druggist, and that therefore these persons had effected registration by means of illegal declarations. In fact, an organisation of discontented Dentists assumed an unwarranted, if not illegal, position, and sent out a number of "threatening letters" so suggestive of pains and penalties that about sixty persons, apparently unwilling to run the risk, applied formally to have their names removed from the Dental Register. A larger number, however, were not so easily frightened, and among these were some who were acting as managers, assistants, or apprentices to chemists and druggists, and considered that in that character they were practising pharmacy; others allege that although not registered as chemists and druggists, they were entitled to be so; and others were actually registered, but not identified through change of address. These illustrate the larger number of the cases.

The subject came under the consideration of the Medical Council at its meeting in July last, when it was resolved that each case should be decided upon its merits, and the

Dental Committee of the Council, constituted under the Act, was requested to report on the facts, whilst the opinion of counsel was to be taken upon different points of procedure.

The report of the Committee just presented to the Medical Council is a most elaborate one; but it has, to all intents and purposes, been superseded and rendered nugatory by the "opinions of counsel" read and adopted by the Council for its guidance at the same time. Some of our readers who remember the history of the passing of the Dental Act will not be surprised to learn that in the opinion of the Solicitor-General and Mr. Muir Mackenzie the "words *bonâ fide* engaged in the practice of Dentistry and Dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy, have no reference to any legal qualifications to practise medicine, surgery, or pharmacy; they are simply intended to indicate that if the person seeking registration is qualified by reason of his being *bonâ fide* in practice as a Dentist, he is to be none the less so entitled because that is not his exclusive occupation, but is only carried on by him in conjunction with the practice of medicine, surgery, or pharmacy." And again, "The practitioner in Dentistry is to be registered in respect of his Dental qualifications only, and the Council need not inquire as to his right to practise medicine, surgery, or pharmacy."

This opinion receives confirmation from the fact that in the Schedule to the Act the form of application for registration contains no provisions for distinguishing between persons practising Dentistry separately and persons practising it in conjunction with medicine, surgery, and pharmacy, and in altering the form so as to require such distinction it would appear that the Medical Council has acted *ultra vires*. Indeed, the tendency has been to reverse the proper positions, and instead of construing the Act to provide that the practice of pharmacy conjointly with Dentistry was not to prevent registration as a Dentist, to read it as stipulating that in some cases a pharmaceutical qualification was to be a necessary condition for such registration.

It almost follows from the foregoing that the words "with pharmacy," or like words, following the name on the Dental Register, are superfluous, and the Medical Council is advised that the Register should contain only the names of practitioners, followed by their Dental qualifications, and not any reference to their qualifications to practise medicine, surgery, or pharmacy.

The Medical Council is also advised that the words "*boná fide* engaged in the practice of Dentistry" do not necessitate that an applicant for registration should have been in business on his own account, if he has discharged the duties of a Dentist and really practised as such, practice being defined as not merely rendering assistance to his employer, but the independent performance of Dental operations. With respect to apprentices, counsel are of opinion that except under the provisions of the 37th Section they cannot claim exemption.

After consideration of the report of the Dental Committee and the "opinions of counsel," the Medical Council first passed a resolution that all statements with reference to the practice of medicine, surgery, or pharmacy, now appearing in the Dentists' Register, shall be erased. It then resolved that the Committee's report not having put it in possession of any evidence to show that the registered persons objected to by the honorary secretary of the British Dental Association or by Dr. Jacob were not at the time of their registration *boná fide* engaged in the practice of Dentistry, it was not prepared to order the removal of their names from the Dental Register. A further resolution provides that the persons who had their names removed from the Register at their own request, under the influence of the "threatening letter," shall, on application, have their names restored without fee, subject to the discretion of the Executive Committee as to the grounds upon which they claim registration.

No doubt these decisions of the Medical Council will be a severe disappointment to the aggressive section of the Dental profession. But after all, in the recent legislation affecting Dentists, as in all previous similar legislation, Parliament jealously provides against infringement of existing rights, and it must be acknowledged that the men whose registration has given so much umbrage can even now do nothing that they could not have done legally before the passing of the Dental Act. The attitude of the General Medical Council in respect to Dental registration generally has also been the subject of sharp criticisms in the medical journals from the medical point of view, but this is a part of the subject with which we have no right to interfere.—*Pharmaceutical Journal*.

THE GENERAL MEDICAL COUNCIL AND THE DENTISTS.

LITTLE less than £1000 will, we believe, cover the expenditure of the General Medical Council in deciding that none of the 500 names of Dentists alleged to be entered incorrectly on the Register could be struck off. It was, for some reason not apparent to ordinary minds, thought necessary to have each case separately reported on, although of one class. It does not appear why a test case should not have answered the purpose. The lawyer's bill alone for these reports will probably amount to over £500. The funds are, however, furnished by the Dental fees; and Dentists are believed to be uncomplaining folk, rather anxious just now to be patronised by the Council, and not likely to make complaint on such minor subjects.—*Brit. Med. Journ.*

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, 7TH FEBRUARY, 1881.

Mr. THOS. A. ROGERS, the newly elected President, took his seat for the first time and delivered an Inaugural Address, of which the following is an abstract :

GENTLEMEN,—By your kindness I again occupy, after an interval of sixteen years, the honorable position of President of this Society, the highest, in my opinion, in the bestowal of the Dental profession. When I ceased, last year, to be a member of the Dental Board of the College of Surgeons, I believed my public life to be finished, and I shelved my books and packed up my microscope. But I am grateful for this additional favour to the many you have already shown me, and for this reason especially: that, as my public work commenced in the service of this Society, so it may fittingly terminate in its service—a pleasant and willing service of a quarter of a century.

In considering what should be the nature of my address this evening, I have been strongly tempted to look back, as is perhaps natural at my age, over the last busy quarter of a century, and to compare the present of Dental Surgery with

its past. But the subject has been so often and so ably treated of late, that there is little for me to say which would be novel. There are, however, two anniversaries falling due this year, which are worthy of remembrance. Twenty-five years ago, on the coming 1st of July, our periodical literature may be said to have commenced with the appearance of the first number of the 'British Journal of Dental Science;' and on the following 10th of November this Society held its first public meeting. Previous efforts had been made to establish a society and a periodical, but the time had not been yet ripe. But in 1856 the minds of men were fully prepared, and the very anxiety which prevailed gave rise to such an effervescence of opinion that for a short time we were impeded by our own eagerness. It soon, however, became evident that the leaders of opinion had the same end in view, namely, the educational progress of the profession, although they viewed it from different stand-points. One of the main objects of our Society, namely, the "promotion of intercourse among members of the Dental profession," was soon attained, with the anticipated result; and some present can testify that a supposed antagonism speedily became a real and lasting union. Our Society may justly be proud of the great educational work which has been mainly accomplished by its efforts. In my opinion its political work is now finished. Not only have the majority of its members been elected into it quite irrespectively of their views upon Dental politics, but the views of its older members have in some instances diverged as the educational movement has developed itself. We may safely, and indeed, profitably, differ widely upon scientific subjects which involve no corporate action, but we might endanger our present prosperity if we were to commit ourselves to a course of Dental politics from which, whatever its tendency, some of our members would be sure to dissent. And besides, our very vigorous young relative the British Dental Association is fully equal to all political emergencies, and we may safely place implicit confidence in its energy and sagacity. I wish every member of this Society was also a member of that body.

A scientific society exercises a *higher* influence than a periodical over the profession which they both represent; chiefly, perhaps, through the direct personal intercourse brought about by the former. But a periodical literature penetrates deeper into the professional body, and reaches those who do not care to exert themselves to join energetically in the work of a society. The continued existence of the 'British Journal' is evidence of its supplying a need in our professional life; and I, for one, shall look forward with

interest to its anniversary number. Having subscribed to it from its beginning I shall have the opportunity of comparing this, the coming number, with the first. I confess I am somewhat doubtful as to the present desirability of a fortnightly publication of a Dental periodical.

But perhaps the subject of all others which possesses the greatest interest for us at this moment is that of the International Medical Congress, which is to be held in London at the beginning of August, and it must be a great satisfaction to us all that a section is assigned in it to Diseases of the Teeth. International Medical Congresses have been held at Paris in 1867, at Florence in 1869, Vienna in 1873, Brussels in 1875, Philadelphia in 1876, Geneva in 1877, and Amsterdam in 1879; the last being the occasion of the wonderful reception accorded to our great English surgeon, Professor Lister. I have looked through all the records I could find of their proceedings, but have failed to find any notice of a Dental Section. Obstetrics, Ophthalmic Surgery, Otology, Dermatology, were all represented, but Dental Surgery seems ignored, and as though it had no existence. I confess to have been not a little surprised that our active and energetic brethren in America were unrecognised at Philadelphia, considering the great services they have rendered to Dental progress. But it is with corresponding pride that I record the fact that, in our own country, our branch of surgery has, for the first time at these congresses, received the official recognition of the surgical body before the whole world. Nor need we fear a comparison of the names of our representatives with the names of the representatives of any other of the sections. And it only remains, therefore, that we should at once prepare to fulfil the duties and responsibilities of such a position. We may rest assured that our proceedings will be closely scanned by the entire Dental world, and by no small portion of the surgical profession. Let us see to it, therefore, that our action on this, to us, momentous occasion, shall be worthy of the position we take up, and of forming a precedent for guidance and imitation at all future congresses. No definite and final arrangements have as yet been made as regards the proceedings of the different bodies connected with the congress. Your Council will be careful that the Odontological Society, as the chief Dental Society of this country, shall play its proper part when the time comes.

The remainder of the address consisted of a dissertation on the Embryonic Origin of the Dental Tissues, a subject in which Mr. Rogers has for years past been much

interested. It was illustrated by a number of coloured diagrams, drawn by Mr. Walsham.

The rest of the evening was spent in the discussion of an unusual number of casual communications and interesting specimens.

Mr. COLEMAN showed two upper temporary canines, one of which had two distinct fangs, whilst the root of the other was deeply grooved on each side, and showed a tendency to bifurcation at the apex; he remarked that as opportunities of examining the roots of these teeth seldom presented themselves, it was possible that this irregularity might not be very uncommon. He showed also a second lower bicuspid with two divergent fangs, which he had extracted from the mouth of a female at the Dental Hospital. This he believed to be one of the rarest examples of this sort of irregularity.

Mr. HUTCHINSON showed an upper bicuspid with three fangs which had been presented to the Museum by Mr. Brindley, of Sheffield.

Mr. CHAS. TOMES showed a first upper molar, which had been sent to him by Mr. Tod, of Brighton; it had a small enamel nodule on the anterior surface of the neck, below the ordinary level of the enamel, and a similar one on the posterior surface. On examining the second molar, it was found that it had a similar excrescence on its anterior aspect; but as the tooth was not extracted, it could not be ascertained whether the growth was symmetrical in this case also.

Mr. Tomes also showed a portion of an elephant's tusk, in the interior of which a bullet had been found embedded, surrounded by a large mass of secondary dentine. He also showed two specimens of ivory from the tusks of the extinct mammoth, obtained from skeletons found in northern Siberia.

Mr. HUNT (of Yeovil) showed some small diamond drills, which he had obtained from Mr. J. S. Glen, of 370, King's Road, Chelsea. They were made of various sizes to drill holes of from $\frac{1}{32}$ nd to $\frac{1}{8}$ th inch in diameter. They were very cheap, and he had found them very useful for drilling artificial teeth.

Mr. Coleman suggested that they might sometimes be useful for drilling teeth in the mouth. It was sometimes difficult to make a beginning with a steel instrument, it was apt to slip.

Mr. HUNT said he did not think the form of the crystal was adapted for cutting either enamel or dentine.

Mr. ISIDOR LYONS related the case of a man who swallowed his false teeth whilst asleep. He awoke in the night with a feeling of choking, got up and went to a neighbouring doctor who attempted to push the plate into the stomach with a

probang; he then gave the patient a dose of castor oil and sent him home. Not finding any relief from this treatment, he went at 5 a.m. to St. Bartholomew's Hospital, where the plate was removed by Mr. Thos. Smith, after some trouble, by means of long œsophagus forceps. The patient was kept on spoon diet for a few days, but was discharged quite well at the end of a week.

Mr. WEISS said his inquiries had shown that this accident was more common than most people supposed. In cases where the teeth had passed into the stomach, the best treatment was to give the patient plenty of thick oatmeal porridge in which some worsted, cut up into short lengths, had been mixed. This would become entangled round any sharp points or hooks, and would greatly diminish the risk of injury to the stomach or intestines. The worst thing to do was to administer purgatives.

Mr. PERCY MAY showed a model of the upper jaw of a patient, aged 21, showing absence of the laterals and bicuspid and retention of two temporary molars. Mr. May extracted one of these, which was much decayed, but on probing could not detect any tooth beneath. The patient's mother and a sister had the same peculiarity.

The SECRETARY showed an old fashioned lower denture which had been sent up by Mr. Paxton Harding to Carnarvon. Having been accidentally broken, the patient had mended it himself in a very ingenious manner.

Mr. F. CANTON mentioned the case of a child, 6½ years old, who, although very intelligent, understanding all that was said to him and making himself understood by signs, could not speak. On one occasion, when about three years old, he had spoken a few words, but could never be got to repeat them. He had never suffered from any serious illness nor been subjected to any fright. His organs of articulation were normal, except that the palate was a little high, and all the other children learned to talk at the usual age. Mr. Canton asked for information as to the probable cause of the absence of speech and the prognosis.

Mr. HUNT said a girl eleven years old had been brought to him in an exactly similar condition. He could only suggest that possibly an improvement might take place at puberty.

Mr. HUTCHINSON said he knew of a family of four children, all bright and intelligent, none of whom learnt to talk till they were five years old; the youngest, now aged four, could only speak a few words.

Mr. STOCKEN related the case of a gentleman, aged between sixty and seventy, who came to him complaining of great discomfort due to the presence of a calculus imbedded in

the wall of the pharynx. It was about the size of a pea and had been three years in forming; the patient had had several in the same situation. Mr. Stocken removed it and, in order to diminish the chance of a return, carefully removed all *débris* from the small cavity in which it had lain with a syringe.

The PRESIDENT then announced that at the next meeting Mr. Charters White would read a paper on "The Histology of the Gustatory Organs of the Tongue." The meeting then terminated.

ODONTO-CHIRURGICAL SOCIETY.

ORDINARY MEETING, HELD 13TH JANUARY, 1881.

WALTER CAMPBELL, Esq., L.D.S., President, in the Chair.

THE following gentlemen were balloted for, and unanimously elected members:

John Smith, M.D., F.R.C.S. Ed. (Edinburgh), David Hepburn, L.D.S. Eng. (London), Frederick Arthur Canton, L.D.S. Eng. (London), James Stewart Durward, L.D.S. Ed. (Edinburgh), John Morely Dennis, L.S.A. Lond. (West Grimsby), Alexander MacGregor, (London), Frederick Donovan, (London), and George Sime, King Street (Dundee).

The following gentlemen were nominated for membership:

Joseph Hollands, L.D.S. Ed. and Eng., 201, Sloane Street, London, S.W., and John Gourlay, L.D.S. Glas., 252, Buchanan Street, Glasgow.

The subject of Alveolar abscess—its Pathology, Treatment, and Metastatic Exhibition, was then introduced, and formed an exceedingly instructive and interesting topic for the evening's conversation. Messrs. Wilson, Watson, Campbell, Macleod, Matthews, MacGregor, and Mackintosh took part in the discussion, which was, however, altogether of a conversational character. As, however, there were several new ideas thrown out in regard to treatment in special complications, and several rare cases of distant exhibition adduced, it is to be hoped that these may be gathered together and brought before the Society, in the form of a paper, at a future meeting.

The following cases of interest were then brought under the notice of the members:

Mr. WILSON exhibited the model of a very curious case. The patient, a young lady of 22, had, *two* years before seeing

him, picked out one of her upper temporary canines (which was quite loose), expecting that in a short time it would be succeeded by a permanent one. Time passed. No tooth appearing, and the space showing no symptoms of contracting, she called on him to have an artificial substitute. Upon examining the mouth, he found that both permanent lateral incisors had been suppressed, their places being occupied by the permanent canines. Next in order, on the one side, was a temporary canine. On the opposite side, the space which had been occupied by the other temporary canine. Then, on either side, followed the first bicuspid, the second temporary molar, and, lastly, the first permanent molar. No other permanent molars had ever appeared, nor, as they would see from the model of the case, were ever likely to do so. The remaining temporary canine being slightly loose, he removed it, and found that nearly three fourths of its root had been absorbed. He then replaced both by artificial ones.

Mr. WATSON then said:—Mr. President and Gentlemen, —I wish to bring before your notice a very unique specimen of a second inferior premolar, which I extracted to remedy a crowded denture in a boy æt. 12. I have only a portion of the tooth to show, as I have made sections of it, so as to make out its histological structure, but I hand round for your inspection a very good model of the tooth, which I made previous to cutting it up. The enamel, as you will perceive from the part of the tooth left, is fissured, and very faulty in structure; but the most interesting part of the tooth is the neck and root. Commencing at the anterior distal surface of the neck, and passing round the mesial to the middle of its lingual surface, extends a broad shelf-like collar, of hard, dense tissue, which becomes reflected on to, and confluent with, the root. On dividing it vertically, the pulp cavity was found to be very large, and occupying a considerable portion of the anterior largest and most prominent part of the collar-like shelf. In this part of the pulp cavity there are also present three nodules of secondary dentine attached to its walls. The dentine of the tooth, instead of being white, is of a yellowish colour, and appears to be very dense. On making a thin section, and examining with the microscopic, I found it to be a very interesting and rare specimen of exostosis.

A drawing showing the histological structure of the specimen was then handed round.

As you will observe, there is a considerable hollow in the dentine at the anterior portion of the neck of the tooth, which is filled up with cementum; and continued from here round the ledge there is a thin layer of structureless cement,

which a little below the most prominent part abruptly thickens out, and displays numerous lacunæ and canaliculæ and the remains of several vascular canals, while the outline of this tissue shows several bay-like excavations also for the passage of vessels. The dentine contains numerous interglobular spaces, while the dentinal tubules are very irregular in their arrangement in some parts of this tissue, and in the crown the majority of them are filled up with secondary dentine, which gives it the yellowish colour already mentioned, and likewise making it very transparent. The whole tooth is so peculiar in its structure that I was under the impression, before I examined it microscopically, that it was an odontome. There is no doubt, however, that, like an odontome, it has been produced by a morbid condition of the formative pulp.

This terminated the proceedings.

At the meeting which took place on the 10th ult., Walter Campbell, Esq., L.D.S., President, in the chair, Mr. G. W. Watson, L.D.S. Ed., read a paper on "Secondary Hard Formations in the Pulp Cavity, their Physiology, and Pathological Signification," which will be found at page 202 of our present issue.

At the conclusion the PRESIDENT said the Society was deeply indebted to Mr. Watson for such a valuable contribution, based as it was upon original and painstaking research, and illustrated by so many carefully prepared microscopic and other specimens of those hard formations in the pulp cavity, the presence of which gave rise to severe neuralgic disturbance, and in many cases were so difficult of detection. It would not be doing justice to such a paper to attempt to discuss it off-hand; but he trusted the members would give it their serious consideration during the recess, and be prepared to confirm Mr. Watson's conclusions, or, it may be, throw some new light on this important topic at their next meeting, which would be held on March 11th.

BRITISH DENTAL ASSOCIATION.

At a meeting of the Representative Board of the Association held at the Dental Hospital of London on the 7th ult., it was determined to accept as conclusive the decision of the Medical Council respecting the retention on the Dentists' Register of the names of those who wrongfully declared themselves to be engaged in the practice of pharmacy. The following resolutions were also passed:

1. "That the Executive Committee of the Medical Council be asked to furnish to the Association a list of those persons who are described as 'apprentices to chemists and druggists' at page 14 of the 'Council's Minutes' for February, 1881.

2. "That the Representative Board of the British Dental Association beg respectfully to thank the General Medical Council for the prompt consideration it has given to the elucidation of certain provisions of the Dentists Act, upon the interpretation of which considerable difference of opinion prevails."

DENTAL STUDENTS' ASSOCIATION, ANDERSON'S COLLEGE, GLASGOW.

THE annual dinner of the above Association was held in the Bedford Hotel on Friday evening, 4th February, 1881.

The Honorary President, James R. Brownlie, Esq., L.D.S. Eng., occupied the chair, and was supported by A. M. Buchanan, A.M., M.D., Professor of Anatomy; James Dunlop, M.D., Professor of Surgery, and several members of the Staff of the Dental Hospital. James Cumming, Esq., L.D.S. (Glasgow), was croupier.

The Association, which was formed in January, 1880, with thirteen members, now consists of twenty-nine members. It has recently sustained a severe loss through the death of Mr. John Crooks Morison, L.D.S. (Eng). who, during the short period he was connected with the Association, most ably discharged the duties of President.

There were forty gentlemen present at the dinner, and the evening was most enjoyably spent with toasts, songs, &c.

Miscellanea.

ON PASSING EVENTS.

By "PHOSPHOR."

DENTAL REFORM AND ITS REVIEWERS.

THE late President of the Association of Surgeons practising Dental Surgery has spoken, and I am bound respectfully

to listen. The medical world has been prepared for a learned discourse, but I am sorry to say the result is very disappointing. Old arguments long since answered are feebly advanced, and misconstruction and prejudice can be read between every line of his address. That a dispute has been "raging" respecting the Dentists Act is hardly true, but the assertion that the arguments have not been conducted in a satisfactory manner is thoroughly correct, indeed, the officers of the Association of Surgeons practising Dental Surgery have made this painfully conspicuous, and I can only say that I regret it.

The late president begins his address by telling us that in 1859 the College of Surgeons of England commenced to grant licences in Dental Surgery to candidates who were little better than half-educated, authorising persons to practise an important branch of surgery who had only obtained a limited knowledge of the science, and, with wonderful research, he adds—*the practice is still continued*. He also complains that the College did all this without consulting its members, whose knowledge of *Dental* science, be it remembered, is still very limited, if we are to judge by the members' examination even at the present day on all matters connected with the teeth. He also tells us that the evil has been extended to the Scotch and the Irish colleges, this evil—more particularly in the English College—being a distinct and comprehensive education in Dental surgery and pathology with hospital practice, also a special examination and demonstration of fitness to practise; and all this, the late president laments, is given without the candidate being a member of the College, without his being made a silent surgeon or a useless medical practitioner; it is true they are made instead competent Dentists, with a knowledge of every branch of surgery needed and the addition of all those studies the membership does not include. I see in all this no "licensing of half-educated specialists," as he says, for the degree of L.D.S. is a better test of fitness to practise as a Dentist than any member's examination could be. It is absurd for any one to try and make the public believe to the contrary. The education is not a partial education, it is a full and fit education to make a man a Dental surgeon, although it may have been deficient when first instituted without curriculum; all those studies needed for the practice of the profession are now included in it.

The membership examination and education by itself is incomplete if a man desires to practise as a Dentist. He must begin a new series of studies, and what is more he must go through a new practical training and examination,

the only one that can prove whether he is fit to practise. His special calling needs a special licence, and the M.R.C.S. no more supplies that than the membership of any other of the learned societies. Time is only wasted if it is employed in attending lectures that are not needed, more particularly when it might be so well employed in operating, but as the late president thinks that the necessity for gold filling has been much exaggerated, I will leave him with his new departure theories, and pass on to another part of his discourse.

He gives it as his opinion that mechanical Dentistry *should be practised separately*, an opinion that hardly merits canvassing. A mechanical training appears to me to be essential if our patients are to have their requirements properly attended to. Setting aside the reduction of income, we can give a hundred reasons why mechanical Dentistry should form a part of our daily practice. It is a well-known fact that the operations of restitution are better performed by one who has had such a training. I go even farther, and I say that the best results, if we consider comfort and personal appearance, are only obtained by those who are privileged to see the patient and have the ability to design what they require. Throw mechanical work into the hands of the mere workman, and the chances are you lose that harmonious appearance which should be carried out in all substitutions. If artificial teeth are to be made, they should be furnished by the Dental surgeon, and he should not be above superintending their construction. But we must not lose sight of the philanthropy of the late president when he says "that those who have been tempted to take the Dental licence, thinking it to be a more *honorable* degree than it really is, should have the way made easy for them to acquire the diploma of member." I am sure the race of students now springing up are greatly obliged to him, but I should advise them to stick to the L.D.S. provided by the College, for we know full well should any deficiency be apparent in that diploma the College will see that it is added; it is *the Dental* licence, and the coming generation show every day more and more that it is the degree they expect the Dentist to acquire.

"It is given to but few to possess so fine a judgment as will enable them to perceive and correctly estimate the course of coming events." Are you quite sure Mr. President, that your vision is so educated and your judgment so perfect that the future is revealed to you? I also watch the spirit of the age, and believe that the public good can only be ensured by education giving us that we are called upon to follow. With equal earnestness I honour the study of medicine and surgery,

as I reverence every art inculcated for the benefit and the refinement of man. I would that every member of our body had *all* those glorious distinctions that culture and study can give, but I feel that in trying to do too much you stand in danger of flying after shadows and leaving the substance behind. I see work, bench labour, Dental hospital practice, lecture-room study, all calling upon the students' energy, and I believe that if properly carried out the curriculum of the licentiate in Dental surgery is sufficient to make a man a useful member of our profession, and what more can any reasonable being desire.

THE MEDICAL REGISTER AND THE DIRECTORY.

WE have received a copy of the 'Medical Register' for the current year, and notice that, like its unofficial relative, the 'Medical Directory,' it shows a decided tendency to increase in bulk with advancing years. The edition of 1869—the earliest we have at hand—contains pp. 510, the present issue boasts pp. 590. This growth is due in part to a less crowded arrangement of the names in the later issues, partly to an increased number of names—there were 22,200 persons on the Register in 1876, there are 22,936 in the present year—and partly to the increased length of the legal portion; we often hear of "*the Medical Act*," but here are *eleven* Medical Acts set out at length, besides the Dentists Act. The volume has evidently been most conscientiously edited, and the general get up is excellent.

We ought to have noticed earlier the last issue of the Medical Directory. Its increasing size we have already remarked upon—200 pages have been added since 1874. Thanks to the active mediation of Mr. James Parkinson and Dr. Walker, backed by the strong expression of professional opinion which we elicited last year, we find that the list of Dental licentiates is reinstated in its old form, and, further, that its position is indicated by the word "Dental" conspicuously printed on the edges of the leaves. The list itself occupied nine pages in the 1879 issue, it nearly fills fourteen in the present—representing an addition of about 250 licentiates. We are pleased to be able to add that the sale of the work this year has been unusually good, and that, consequently, acceding to our wishes has not caused the proprietors any pecuniary loss.

PLAIN SPEAKING.

THE following is taken from a report of the 'Proceedings of the Twentieth Annual Session of the American Dental Association,' Section IV—"Operative Dentistry." A paper on "Oral Electricity," written by an opponent of the "new departure" school, having been read by the secretary, one of the audience commenced his criticisms as follows:—"In his opinion the censors who had inflicted the reading of this paper upon the American Dental Association needed to go to school. It was abominable for a man who claimed to know something of natural philosophy to go on with the *wretched drivel, misconception, and misstatement* the Association had just listened to. Whoever the *miserable wretch* who had written the paper might be, he was of the old-fogey stamp, and had hidden under a mass of words an amount of information which could have been given in two minutes," &c. What is more remarkable is, that the speaker does not appear to have been called to order by the president for what, in this country, would certainly be considered very unparliamentary language. The next speaker protested mildly, and here was an end of the matter.

THE PHILADELPHIA BOGUS DIPLOMAS.

IN view of the wide-spread mischief which "Professor" John Buchanan seemed determined to inflict upon the community by the fraudulent sale of diplomas, bringing disgrace upon the city and a general distrust of reputable institutions, to say nothing of the licensing of unqualified persons to practice medicine; he must be considered as an enemy of society. We are glad, therefore, to announce that Judge Butler has sentenced him to pay a fine of five hundred dollars and the costs of prosecution, and to undergo an imprisonment of ten months in the Eastern Penitentiary. This on the proof of attempt to defraud the United States of his bail-bond, by a conspiracy to delude the court into the belief of his death. He has yet to answer in the State courts for the fraudulent diploma traffic.

His brother-in-law, Chapman, who, we believe, perjured himself in an effort to effect Buchanan's escape, was sentenced to the same fine and twenty-two months' imprisonment. —*Philadelphia Med. Times.*

GELSEMINUM IN FACIAL NEURALGIA.

SUFFERING severely from facial neuralgia last night, I took a dose (ten minims) of the fluid extract of gelseminum, U.S.P. In half an hour, being very little better, I took another dose of the same strength. In fifteen minutes after the second dose I was so drowsy that I could scarcely keep awake. There was great pain over the frontal region—no neuralgia. The pulse was weak and intermittent. I had cold shivering and dizziness. The pupils were slightly contracted, and there was a general feeling of collapse. I took a cup of very strong tea, and in five minutes was very sick, vomiting freely, but not feeling any better. I had then given to me a glass of strong brandy and water, which was repeated in half an hour. In two hours I was right again. The neuralgia has not reappeared. This may be of use to those who use the drug for neuralgia. I have frequently used it for others in smaller doses (four to six minims), but never gave such a large dose to begin with. I have found it very valuable in neuralgia of the face, even when due to bad teeth.—GEORGE H. H. DE WOLFE, M.D.—*Brit. Med. Journ.*

PROPOSED DENTAL HOSPITAL AT NEWCASTLE-ON-TYNE.

WE see by a notice in the 'Sunderland Daily Post' of February 7th, that it is proposed to establish a Dental Hospital at Newcastle-on-Tyne. A town containing 130,000 inhabitants, with a densely populated neighbourhood, ought to be well able to support such an institution, and if this one is to be established on a satisfactory basis, we wish it all success. We confess, however, that the paragraph referred to leaves some doubts in our mind. Only one honorary surgeon is mentioned; he is said to be "L.D.S.R.C.S.," but of what college is not stated, and his name is not to be found in the Medical Directory. Moreover, some other particulars are given respecting him which are in the worst possible taste, and Newcastle contains at least one other licentiate of acknowledged standing in the profession, whose name is *not* mentioned. The "young gentleman" who is thus "shown up" may not be at all responsible for the fulsome puff given him by an injudicious friend, we express

no opinion in the matter, but we cannot venture to congratulate him or the people of Newcastle until we know more about the real state of affairs.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

THE Annual General Meeting of this Society will be held in its rooms, 30, Chamber's Street, Edinburgh, on Friday, March 11th, at 2.30 p.m., Walter Campbell, Esq., L.D.S., President, in the Chair.

Business.—Election of Office-bearers for 1881–82; Treasurer, Librarian, and Curator's Reports.

Discussion of Mr. Watson's paper on "Secondary Hard Formations in Pulp Cavities, their Physiological and Pathological Signification."

A paper will be read by Mr. Wilson, L.D.S. Ed., on "The Sectorial Teeth and their Modifications in the Carnivora."

Casual communications.

We are requested to state that the Anniversary Dinner of the Licentiates in Dental Surgery of Edinburgh, and of members of the Odonto-Chirurgical Society, will take place on Friday, March 11th, at the London Hotel, St. Andrew Square, Edinburgh, at 6 p.m. Those intending to be present should send in their names at their earliest convenience to the Hon. Sec., Mr. W. Bowman Macleod, L.D.S., 43, George Square, Edinburgh. John Smith, Esq., M.D., F.R.C.S. Ed., will preside; Croupier, Andrew Wilson, Esq., L.D.S. Ed.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

THE following gentlemen passed their first professional examination for the licence in Dental Surgery of the College on January 28th:

Ernest Burt, Weymouth.

Joseph Miller, London.

William John Watson, Birmingham.

Harry Thorn, London.
 Frank Harrison, Sheffield.

And the following gentlemen passed their final examination and were admitted licentiates in Dental Surgery:

William Herbert Williamson, Leicester.
 William John Watson, Birmingham.
 Joseph Miller, London.
 Harry Thorn, London.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following are the papers which were given at the examination for the licence in Dental Surgery, held last month at the Royal College of Surgeons at Dublin. The candidate was directed to answer *one question only* in each paper.

Dental Anatomy.

Examiner—Dr. EDWARD A. STOKER.

1. Give the attachments of Buccinator Muscle, its action in mastication, and whence it derives its vascular and nervous supply.
2. Describe and compare the upper and the lower central incisor teeth, and give their vascular and nervous supply.

Dental Physiology.

Examiner—Mr. B. WILLS RICHARDSON.

1. Name the impurities that escape from the blood during respiration.
2. How would you demonstrate dentinal cartilage?

Dental Surgery and Medicine.

Examiner—Mr. F. ST. B. TAYLOR.

1. Supposing the incisors were much protruded, and all the other teeth sound, what teeth would you remove to bring the incisors into place?
2. To what varieties of fracture are the teeth liable? State the consequences that may arise from each, and the necessary treatment.

Examiner—MR. E. STAMER O'GRADY.

1. What consequences may result from the presence of either broken or jagged teeth in the mouth?

2. What are the causes of immobility (either partial or complete) of the temporo-maxillary articulation? Give the procedures which have been practised for its relief.

Examiner—MR. HENRY G. SHERLOCK.

1. How would you diagnose between idiopathic neuralgia and that caused by a carious tooth?

2. What is the structure of an odontome? Classify odontomes.

Examiner—MR. JOHN H. LONGFORD.

1. Name the teeth that are most useful for preserving the dental arch in children of twelve years of age, with crowded sets. Mention, also, the teeth you would remove in such cases.

2. Describe the best mechanical appliance, in expansion cases, for young persons.

MR. O'DUFFY.

WE are much pleased to be able to state that the charge against this gentleman of irregularity in sending a telegram has completely fallen to the ground, the jury having promptly returned a verdict of acquittal.

PERSONAL.

WE are requested to state that Dr. Best, who has during the last two years been travelling for the benefit of his health, has now decided to remain in London, and has established himself at 14, Henrietta Street, Cavendish Square.

Dr. Best is the inventor of some valuable improvements in working; no one who has seen his results, with celluloid especially, can have much doubt as to the ultimate success of that material. And we trust that a continuance of his present good health will enable him to reap the reward to which his ingenuity and perseverance entitle him.

AN APPEAL.

Two years ago we published an appeal in this Journal on behalf of the widow of the late Mr. Phillip Cafferata, L.D.S. Eng., of Sunderland, which resulted in the collection of the sum of £50. We are sorry now to hear that this money is quite exhausted, and that Mrs. Cafferata is again in extreme poverty. We hope that in time a Dental Benevolent Fund may be started in connection with the British Dental Association, and that these public appeals for individuals may thus be avoided. Meanwhile those who are ready to do as they would be done by should send their contributions to Mr. H. W. Wilkinson, 76, Howard Street, Sheffield, who will see that they are wisely expended on Mrs. Cafferata's behalf.

A QUERY.

WOULD any reader of the 'British Journal of Dental Science' kindly tell me the best way of putting new lead into the lid of a vulcaniser, as I have been much troubled lately with the steam blowing out.—O. M. B.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

DISINFECTION OF INSTRUMENTS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In reply to Mr. Prager's inquiry respecting disinfection of instruments, I find the best thing to use is Calvert's Medical Carbolic Soap, which contains 20 per cent. of acid. This I use with a palate brush and hot water, and when well applied it effectually cleanses the instrument. I then rinse in warm water, dry, and finally rub with wash leather, with a small quantity of vaseline upon it.

I am, &c.,

J. W. B.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

Communications have been received from Messrs. Bowman Macleod (Edinburgh); Dr. Best (London); William Lang (Glasgow); Thomas Gaddes (London); Walter Shephard (Forest Hill); H. W. Wilkinson (Sheffield); F. H. Balkwill (Plymouth); Appleby King (Worcester); "J. W. B."; "O. M. B."; "F. H. G."

ANSWERS TO CORRESPONDENTS.

F. H. J. (Stamford).—We do not quite understand your letter; surely you are registered.

BOOKS AND PAPERS RECEIVED.

- 'Transactions of the American Dental Association,' 1880.
- 'Medical Register,' 1881.
- 'Giornale di Corrispondenza per Dentisti.'
- 'Johnston's Miscellany.'
- 'Lancet.'
- 'British Medical Journal.'
- 'Pharmaceutical Journal.'
- 'Medical Times and Gazette.'
- 'Gazette Odontologique.'
- 'Odontographic Journal.'
- 'London Medical Record,' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

No. 316. LONDON, MARCH 15, 1881. Vol. XXIV.

A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter
Session, 1880.

By THOMAS GADDES, L.D.S. Eng.,

Lecturer also on the Elements of Histology; Assistant Dental
Surgeon to the National Dental Hospital.

ABSTRACT OF LECTURE IV.

Nasmyth's membrane.

GENTLEMEN,—I have mentioned that in man cementum is present on the crowns of his teeth in a rudimentary condition known as Nasmyth's membrane, or enamel cuticle, or persistent dental capsule. Regarding this structure, there has been much diversity of opinion expressed. Professor Huxley regarded it as identical with the structure he described as the *membrana preformativa*, a membrane which covered the dentine papilla prior to the occurrence of calcification, and which afterwards came to intervene between the formed enamel and the enamel organ. And he supposed this *membrana preformativa* to be the source of development of the enamel; but when we come to consider the development of that tissue this hypothetical membrane will then be explained.

The other chief theory regarding this *cuticula dentis* is that of Waldeyer, who considers the external epithelium of the enamel organ to be the source of Nasmyth's membrane, and not that it is rudimentary cementum.

But that this membrane is rudimentary cementum there is considerable evidence to show. In the first place there is its structure. On account of its extreme thinness it would be impossible for it to contain lacunæ, or present any of the lamination seen in ordinary cementum; yet where the tissue is found in sufficient thickness, as in the pits in the crowns of bicuspid and molar teeth, there are frequently found one or more lacunæ, with or without canaliculi.

The lacunæ found in these pits are usually of the nature

of encapsuled lacunæ. In the calcification of formative osteoblasts their contours ordinarily become lost, some are entirely calcified, and many stop short of entire obliteration, and the remnant of such an osteoblast is contained in the so-called lacuna or space. But encapsuled lacunæ are those structural elements in which the contours of the formative osteoblasts have not become obliterated, so that they exist as bodies, with or without a central space, having a contour or capsule which occasionally present a fibrous-like appearance. They are almost always of brownish colour, and the branched spaces when found in their centres vary in size and form from mere fissures to full-sized lacunal cavities.

Encapsuled lacunæ are also occasionally found in human cementum when thickened by disease, as exostosis, and also in the cementum of herbivorous animals.

Secondly, in sections of unworn teeth, ground thin and then treated with hydrochloric acid, you may occasionally be fortunate enough to get a specimen where the membrane is shown to be continuous with the cementum on the root of the tooth. Again, specimens of human teeth are at times met with in which the cementum is continued over the outside of the enamel, and where it contains lacunæ and canaliculi. Such a specimen was illustrated by Mr. Nasmyth himself in 1849, and a similar specimen is illustrated in Mr. Charles Tomes's valuable work on 'Dental Anatomy.'

Thirdly, this leads to another evidence found in comparative anatomy. When speaking of the cementum I said it was the most external hard tooth tissue, and that it formed a covering, not only over the roots, but, in some animals, notably the elephant, ruminants, and herbivora generally, also over the crowns of teeth. Now, a tissue in the position of Nasmyth's membrane, and occasionally presenting lacunæ, as it does in human teeth, when thick enough, points to its being analogous, though in a rudimentary condition, with the cemental covering on the crowns of the teeth of herbivorous animals.

There is yet another—fourth—consideration, that of development. But this, in detail, we must leave for the present. I shall only say, by the way, that the "dental capsule" surrounds and entirely encloses the developing tooth; and, as the cementum on the roots of human teeth, and on the roots and crowns of the teeth of herbivora, is developed from the dental capsule, the argument is thereby strengthened that Nasmyth's membrane, the analogous tissue to the coronal cementum in herbivora, is the homologue of the cementum upon the roots of human teeth—that the

dental capsule, probably, is the source of Nasmyth's membrane.

Besides being exceedingly thin, and only capable of demonstration by the use of acids, Nasmyth's membrane is very resisting to the action of either nitric or hydrochloric acids, and when boiled in caustic potash it only swells slightly. When treated with nitrate of silver it is stained, and a reticulate pattern may be brought out, as though it were made up of epithelial cells. The inner surface is pitted for the reception of the enamel prisms, and it is supposed this may have something to do with its reticulate appearance when treated with nitrate of silver. The property of resisting the destructive action of reagents we find a characteristic of tissues on the borderland of calcification, and such would appear to be the condition of Nasmyth's membrane; nevertheless, though it resists the action of acids, it is not so hard as the enamel, for it becomes worn off shortly after the tooth has taken its place in the mouth.

The yellow colour which characterises Nasmyth's membrane after treatment with nitric acid, and its resistance to the destructive action of acids, are conditions to be observed on similarly treating the outermost and yet unfinished layers of cementum in herbivorous animals. That these conditions are produced upon the *surface* of the cementum, and not between the cementum and enamel, indicate that such is not developed from the external epithelium of the enamel organ: also, that the acid-resisting part of the homologue of Nasmyth's membrane in herbivora is not continuous with the whole thickness of the cementum, but with the outermost and yet imperfectly calcified layer of cementum.

Mr. Charles Tomes says that precisely a similar membrane may be raised from the unworn teeth of many fish which have no enamel, and sets this fact forward to disprove the hypothesis that Nasmyth's membrane is developed from the external epithelium of the enamel organ. Yet against this it can be said that those fishes had an enamel organ which became aborted, and the result of that abortion may have been the formation of Nasmyth's membrane.

Dental Surgery and Medicine.

SOME OF THE CAUSES OF LOSS OF THE TEETH IN THE ADULT.

By CHAS. J. ESSIG, M.D., D.D.S.,
Professor of Mechanical Dentistry and Metallurgy in the Dental
Department of the University of Pennsylvania.

(Read before the Pennsylvania State Dental Society.)

HAVING been requested to read a paper before this society, I have hesitated in the selection of a subject; and in deciding upon a consideration of some of the causes of loss of the teeth in the adult, I have been governed somewhat by the belief that at meetings of this character we should devote more time to the consideration of morbid conditions of the dental organs and contiguous parts than we do. I think we should at least divide our attention equally between the consideration of mechanical appliances and improved methods of filling teeth and the study of pathological conditions, some of which are such prolific causes of loss of the natural organs.

It is becoming a serious question whether that fertility of inventiveness which has placed in the hands of the American Dentist so many mechanical appliances and labour-saving instruments does not exert a very hurtful influence in hindering the acquirement of scientific habits of thought, the power of original research, and the ability to recognise the prodromic signs of the diseases which it is his province to treat.

I do not wish to be understood as undervaluing the very exhaustive manner in which these appliances and different methods of operating have been discussed, in the last ten years, at the meetings of our societies and in our journals; but in the study of Dentistry there are other equally important objects to attain besides the acquirement of mere manual dexterity; and while admitting that dental caries is in skilful and conscientious hands quite amenable to treatment, we should not lose sight of the fact that there are other lesions affecting the usefulness of the dental organs, the etiology, pathology, and treatment of which we have hardly begun to study.

It is not my purpose to attempt anything like an exhaustive review of all the causes of the loss of the teeth. I shall

confine myself simply to a consideration of some of the prominent features of those lesions characterised by the death or recession of the connective tissue and investing structures of vital teeth. The most important of these, because the most common lesion of the class, is the so-called "Riggs's disease," variously designated as absorption of the alveolus, atrophy of the alveoli, necrosis or caries of the alveoli. If I am correctly informed, the term "Riggs's disease" applies only to loosening of the teeth in consequence of caries of their alveolar investment. But whether this death and elimination of the part is due to some cause peculiar to the alveolus, or merely a sequence of the death of the connective membrane by which the function of the bone is suspended, and followed by its removal, in accordance with a well-known law of nature, is as yet an unsettled question. The primary cause is probably systemic: it usually makes its appearance in mouths remarkable for almost complete immunity from decay; and this fact has led to the assumption that such evident power of resisting the usual causes of decay until middle life implies extreme density and low degree of vitality in the structure of the teeth, resulting in a final severance between them and the more highly vitalised contiguous parts, thus constituting a predisposing cause of a disease liable to be developed by an accretion of calculus or other excitant. Adopting this hypothesis, the treatment, beginning in the incipency of the disease, would necessarily be prophylactic in character.

I am aware that many practitioners believe this lesion to be of a merely local character, due solely to the encroachment of a peculiar form of calculus, and the suppuration to be produced by the exciting presence of the calcareous deposit; but the entire absence of a deposit in some cases, the sanious character of the discharge, and the fact that the disease may make its appearance in an acute form in teeth previously unaffected, seem to me to decide the question in favour of it being a local manifestation of a constitutional cause, and the calcareous deposit merely an accident of opportunity.

I have never observed a well-marked case in the mouth of a person under years of maturity; it is probable, however, that the prodromic signs of this disease are frequently overlooked, and that it commences at a much earlier period than is generally supposed. Age can scarcely be considered a predisposing cause of the disease, for while it usually makes its appearance in the mouths of young adults, and slowly progresses until late in middle life, I am led to think that after that period its occurrence is much less frequent, and I

have examined teeth in which the disease, after the age of fifty, seems to have subsided spontaneously, leaving an entire root or part of a root of a molar tooth entirely uncovered. Some of these offer striking examples of the ravages of the disease. In the mouth of one of my patients, sixty years of age, is a superior molar tooth with the anterior buccal root entirely bare to its apex, and from what I can glean of the history of the case its investment was removed in the progress of the morbid condition under consideration.

Pathology.—"Riggs's disease,"—so called because Dr. Riggs has the credit of being the first to call attention to the true pathology of the lesion—properly speaking is caries of the investing tissues constituting the dental socket. That it is caries is abundantly established by the sanious character and peculiar odour of the suppuration; there is nothing to indicate that the alveolar plate is removed by absorption; it is not taken up, but is eliminated; usually only a portion of the socket of a tooth is affected, although the entire circumference may be involved. Chronicity is a prominent feature of it, though it may assume a decidedly acute form; usually it commences at the margins of the gum and progresses slowly for ten, fifteen, or twenty years, until finally the tooth loosens and falls out, or in consequence of the discomfort caused by the pressure of antagonising teeth that result is anticipated by the forceps, until eventually, and sometimes before the patient has reached middle life, the artificial denture has become necessary.

The precursory symptoms in a case which I had the good fortune to watch for more than ten years made their appearance at the age of twenty-eight, and consisted of tumidity at the margins of the gums, and particularly of the festoons between the teeth, and a disposition to bleed freely, sometimes spontaneously, and always upon the slightest pressure; indeed, this is a very constant symptom of the disease, and not infrequently causes great alarm until an examination has revealed the cause. The gum immediately over the affected spots assumed a dark purple colour, and where the disease was confined to a narrow strip of the alveolus, corresponding to the long axis of the tooth, the only perceptible evidence of its existence was a dark purple line immediately over the affected part, and an examination with a suitable probe at this point revealed the absence of a portion of the alveolus beneath, and the instrument would pass nearly to the apex of the root.

When the disease is thus circumscribed, the uneven edges of the alveolus on either side of the seat of the lesion can readily be detected by the finger, seemingly intact; it is this

condition which prevents recession of the gum, and constitutes the sinus or pocket which so greatly complicates the disease, often defeating the most persistent therapeutic efforts by affording a place of lodgment for the purulent discharge, calcareous matter, and other irritating objects.

Slight pressure along this dark line or sulcus quickly brings to view an amount of pus of a peculiarly offensive odour, varying in quantity according to the extent of the disease.

Among exciting causes I am inclined to class an irregular or crowded state of the teeth; in the case I have referred to the first tooth affected was the left inferior canine, which had been crowded quite outside of the arch; the other conditions being favorable, the undue pressure upon the outer plate of the alveolus developed the disease, and, although other teeth were subsequently affected, this was the only one in which the lesion was accompanied with neuralgic pains.

In many cases, where the disease is more diffuse, the increased vascularity which causes the purple hue of the gum will be general, indicating that the greater part, if not all, of the alveolus is affected, and probably in consequence of this extra-vascular condition, bony nodules or prominences will be observed to have formed over or in the immediate vicinity of the affected teeth; these prominences are not common in the superior maxilla, but are frequently met with in the lower jaw in mouths which have for a great length of time been affected with caries of the alveolus.

As I have stated, the disease may assume an acute form. In the case which I have mentioned, more than ten years after the first appearance of the disease, the gum contiguous to the second superior left molar, previously healthy, was affected with all the phenomena of alveolar abscess: the usual throbbing and swelling, the latter, however, confined within narrower limits than usual, and not extending to the cheek; the investing membranes were thickened, caused elongation of the tooth in its socket, with such exquisite tenderness that for the time mastication was entirely suspended. The case being shown to a professional friend, he expressed the suspicion that the pulp was devitalised, and that we had a typical case of alveolar abscess. Acting upon his suggestion, the usual cold-water test was applied to the tooth, and it responded so promptly that no doubt remained of its full vitality; a few hours later the swelling was lanced, releasing a considerable quantity of pus, after which the tenderness speedily subsided, and the tooth and surrounding parts seem to have returned to their normal condition, but it was soon discovered that a considerable portion of the alveolus between

the affected tooth and its immediate neighbour was lost; to the finger there was a perceptible depression in consequence of its absence, and the well-defined edges of the remaining alveolus were readily detected. The tooth never regained its firmness, but remained perfectly comfortable for some months, when the same train of phenomena made their appearance on the palatal investments, ran the same course, and subsided in about the same time, but left the tooth much looser than before. Subsequently a lower molar was affected in the same way, and after resuming its previous condition of usefulness, it was observed that a sinus, with the usual purulent discharge, had become established, and the lesion seemed to lapse into the more frequent chronic state, but was liable at intervals to become very tender, and the tooth would project from its socket to such an extent that mastication could not be performed until these phenomena subsided. It will be observed from the description of this case, the record of which has been conscientiously and carefully kept, that the acute form of caries of the alveolus may be mistaken for alveolar abscess resulting from a devitalised pulp, and that a differential diagnosis is not always easy. In similar cases teeth with vital pulps have been opened by mistake. The mere presence of pain, swelling, and pus, is not always to be regarded as indicative of the death of the pulp of an affected tooth; much the safer diagnostic sign is obtained by the application of the cold-water test before opening into the pulp-chamber.

Treatment.—The etiology of the disease is so obscure that thus far all treatment has been of a palliative character, or directed to the removal of exciting causes; of its predisposing cause nothing is known beyond the fact that it is often hereditary, that those who are affected with it enjoy, as a rule, the most robust health, and that the teeth themselves are generally well developed and dense in structure.

In cases where I have had reason to suspect a tendency to caries of the investing plates of alveolus, my plan has been to act upon the hypothesis that, in consequence of some peculiar organic condition, the union of the connective tissue with the tooth was enfeebled, and it merely required the encroachment of calculus or the lodgment of an insoluble constituent of a dentifrice beneath the margins of the gums, or the use of an improperly-selected tooth-brush to cause a severance and the establishment of a sinus or pocket, offering a lodgment for irritating substances, after which the progress of the lesion becomes more rapid, and its treatment more difficult; hence my treatment has been to remove all foreign accretions at what might be considered the incipi-

ency of the disease, before the establishment of the pocket, and to direct my patient to observe the utmost cleanliness, to brush the teeth thoroughly after every meal with a moderately soft brush, and for the removal of mucous deposits between the teeth to carefully rinse the mouth at least three times a day with a solution of

Chloride of zinc, gr. x;

Aquæ, ℥j.

The thorough removal of all foreign accretions becomes a *sine quâ non* to the arrest of the progress of this disease, but care should be observed, in the removal of calculus, not to unduly wound the gum, or to further separate the teeth and connective tissues; the indiscriminate scraping which seems to be regarded by many as the remedy *par excellence* for the lesion often, I am convinced, only accelerates its progress. All deposits of tartar within easy reach of an instrument should, of course, be removed by that means, but the more scanty layer situated far in towards the extremity of the sinus can be got rid of more perfectly by packing small rolls of cotton saturated with aromatic sulphuric acid; by this means we are enabled to soften the calcareous deposit, while at the same time we obtain the other therapeutic effects of the agents in giving tone and stimulating healthy granulation. The peculiar form of lime deposit met with in this disease is of great hardness, as any one will find who attempts to remove it from a tooth which has been extracted, and I can conceive of no process of scraping the roots of teeth in the mouth which promises thoroughness, neither have I ever seen an instrument with which such a result would seem to be attainable. The roots of teeth are rarely so even and uniform in shape as to permit of anything like complete removal of the accretion by scraping; indeed, in many cases a narrow sinus not infrequently extends under the bifurcating portion of the tooth. Such a position would defy the most skilful and persistent hand to effect the entire removal of the lime deposit, yet the effect of very dilute aromatic sulphuric acid upon this material is to render it so soft in one hour's time that it can almost be washed away with a syringe, and the most delicate barbed scaler will be sufficient to remove it with but little force.

I have at different times in the treatment of this lesion employed—requiring the conditions of cleanliness already noticed—iodine, iodine in carbolic acid, nitrate of silver, chloride of zinc, and aromatic sulphuric acid. The means of applying the agent was to arm a piece of wood cut to a thin edge with cotton, by which means the remedy could be carried to the very extremity of the sinus or pocket. I will

merely say that while by the use of these agents I believe I have retarded the progress of the disease, yet I never by their agency in long-established cases succeeded in effecting a permanent cure.

In the treatment of the case to which I have alluded, aromatic sulphuric acid was freely employed; it was applied half strength upon pellets of cotton pressed into the sinus or pocket, and allowed to remain for a day. After two or three applications a marked improvement was noticed, particularly in teeth around which the lesion had not attained much depth; in these the suppuration had entirely ceased, but I soon found that any abatement of the patient's efforts in the direction of cleanliness was speedily followed by a return of the discharge.

I have stated the belief that the deep sinuses or pockets caused by the death of the peridental membranes greatly add to the difficulty of effecting a cure; I have supposed that it was not possible by any line of treatment to induce a reproduction of this tissue and make it again adhere to the root,—in short, to restore the tooth to its former integrity. Dr. C. G. Davis, in the April (1879) number of the 'Dental Cosmos,' uses the following language: "I had the satisfaction of seeing the very wide and deep pockets of the teeth first operated upon entirely closed with new tissue, and the teeth themselves quite firmly set—indeed, nearly as fast as the teeth not affected." The inference here is clearly, that both reproduction and reunion were effected; the language, however, might have been more explicit on so important a point. I have occasionally, where the sinus was nearly accessible, as when situated on the labial surface of a canine tooth, slit the gum constituting the pocket with a delicate curved bistoury to its full extent for the purpose of breaking up the place of lodgment. The same result may be obtained by the frequent use of aromatic sulphuric acid full strength.

In reviewing the results of my efforts in the treatment of caries of the peridental tissues, I feel bound to admit that they have not been as positive in cases of long standing as some recent writers have claimed for themselves. Much depends upon the full co-operation of the patient; when we have this we may palliate or retard the progress of the disease, and when taken in time we may effect a cure.

There are other forms of gum lesion resulting in loosening and final loss of the teeth which depend upon certain phases of atrophy—or, as it is more frequently termed, "absorption"—of the alveolar investments, or of the roots of the teeth themselves. A very remarkable case of atrophy of the roots of all of the teeth in the superior arch came under my

notice seven years ago. The patient, a lady, came for advice about a very loose central incisor. I observed a very general ulitis; all the teeth were more or less loose, and there was slight ulceration and much tenderness around the margins of the gums; these were treated by sulphate of zinc, applied with a pencil, and astringent mouth-washes. The ulitic features of the lesion soon subsided under this treatment. It was evident, however, that the disease had been going on for a long time, and that some of the incisor teeth must soon be lost. Within a few days she brought me the central tooth, which had come out while eating. I was surprised to find that the entire root was gone. (Ultimately all the superior teeth were lost. The lower teeth, though still *in situ*, are infirm, and the same ulitic condition prevails.) The absorption had gone on so uniformly and equally that the root exhibited simply loss of bulk; its shape had not materially changed, but was as gracefully rounded off as as though it had never been of greater length. The pulp-canal, instead of being open and largely exposed, was about of the normal size. I am indebted to Dr. H. Garrett, of Wilmington, Del., for a specimen of another form of atrophy of the roots of teeth; the patient, a very robust gentleman, in the prime of life, had a very loose central incisor, which I here exhibit. I had the good fortune to examine the tooth before extraction; it was simply elongated, loose, and very tender, but all the surrounding teeth were unaffected, and have remained so. It will be observed that the absorption has at one point quite reached the enamel, that it has the appearance of having been fractured, leaving a very uneven surface, but it will also be noticed that as the retrogressive process has gone on the pulp-chamber has simply receded, and that the opening through the root is no larger than is often normal.

The cause of this lesion seems to be exceedingly obscure: we only know that something has occurred to disturb that physiological balance existing between waste and repair. One of those functions may predominate and go on at the expense of the other, and we may have atrophy or we may have exostosis, as the case may be; thus, if nervous supply is interfered with nutrition is suspended, but, the function of the absorbent vessels being unimpaired, loss of bulk—atrophy—is the result. The treatment of this lesion can only, in the present state of our knowledge of its etiology, be confined to symptoms. Any recognisable exciting cause should be removed, and if accompanied with inflammation or ulceration, these should be subdued as speedily as possible. The first case I have mentioned came to me in its advanced stage, and I could get no history of it; the family physician attributed

it in a general way to an adynamic condition incident to numerous closely-succeeding pregnancies. All the cases of this lesion which I have seen were accompanied by ulitic symptoms. Tomes, however, (p. 447, 'System of Dental Surgery'), describes a case in which a number of teeth were lost from this cause, and which was unaccompanied by any indications of the presence of disease either in the gums or alveolar process.

Under the head of atrophy we may also class those other causes for the loosening of the teeth the first of which is the gradual recession of the gums and investing tissues without any other signs of disease, differing essentially from the so-called "Riggs's disease," in that there is no discharge, no adhering calculus, no sinus, or pockets, and no ulitic symptoms accompany it; the appearance of the gums is anæmic, expressing feeble vascular action. Individuals suffering from impaired digestion are said to be most liable to it; therapeutic treatment would be ill-directed in a case of this kind, and for such persons the best safeguard would be a life of exercise in the open air with plain nutritious food.

There is a somewhat similar form of alveolar absorption, confined, however, usually to the incisor teeth, which resembles in its pathological character the condition just described. It consists of a partial atrophy of the alveolus, the seat of the lesion being confined to the outer plate, which gradually recedes, thus depriving the teeth of much of their support; the result is that change of position and mal-occlusion gradually follows. From observation in a number of these cases I am disposed to regard this as hereditary, and I may mention one case which will serve as an illustration. A lady patient of middle age consulted me about the gradual spreading of the front teeth; they were perfectly sound and well developed, but they were beginning to project so much as to disfigure the patient, and from the extent to which they deviated from the perpendicular line, to be entirely useless for the purpose of incising, in addition to which they were elongating and becoming loose. It was decided to extract, and replace them upon a gold plate. Shortly after this a son of the lady, aged eleven, was brought to me with about the same condition, the teeth projecting and resting in a very unsightly manner upon the lower lip. Very little difficulty was experienced in bringing these teeth to nearly a perpendicular position; a retaining fixture was adjusted, which held them in place for two years; they, however, eventually returned to their former position.

The conditions herein considered should not be confounded with loosening of the teeth of very aged persons. In ad-

vanced life the tissues change; the capillaries become obliterated, constituting a general senile atrophy. To this cause may be attributed that diminution of the alveolus eventuating in loss of the dental organs, and the process seems to be so nearly a physiological one that all treatment is contra-indicated.—*Dental Cosmos*.

Mechanical Dentistry.

REPLIES TO QUERY.

THE following are replies to the query from "O. M. B." which appeared at p. 245 of our last issue:

In reply to "O. M. B.," who asks "the best way of putting new lead into the lid of a vulcaniser," presuming the lid to be a dome-shaped one, "O. M. B." should take it to a blacksmith's forge and place the lid inverted in the centre of the coals, banking them up around it. In another part of the fire have a ladle with the lead, get up a good fire, and heat the lid till nearly red hot, melting the lead in the ladle at the same time. Remove the lid to a vice, fixing it in by the knob on the lid; then, while it is still very hot, pour the lead into the groove. If the lid should not be quite upright the lead, which will remain liquid long enough, will show you when it is so by standing evenly in the groove. When nearly cool remove to the vulcaniser and screw the lid gently down, and the rim will embed itself.—G. C. McADAM, Hereford.

In answer to the query of "O. M. B." in the 'British Journal of Dental Science' of March 1st, I find the best way is to fix the lid of the vulcaniser in the bench vice, taking care to get it perfectly level, then, after blowing upon it with a Fletcher's blowpipe to make it hot, I pour in the lead from a ladle, but care should be taken that it does not cool too quick, or else, in contracting, the lead sometimes cracks.—A. RAYNER, York.

Hospital Reports and Case-Book.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM FEBRUARY 1ST TO FEBRUARY 28TH, 1881.

Extractions	{ Children under 14	436
	{ Adults	725
	{ Under Nitrous Oxide	307
Gold Stoppings		101
White Foil ditto		6
Plastic ditto		441
Irregularities of the Teeth treated mechanically		72
Miscellaneous Cases		228
Advice Cases		150
Total.....		2466

R. GILES BRADSHAW,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM FEBRUARY 1ST TO FEBRUARY 28TH, 1881.

Number of Patients attended		1111
Extractions	{ Children under 14.....	222
	{ Adults.....	487
	{ Under Nitrous Oxide	92
Gold Stoppings		108
Sheets of Gold used, independent of Pellets.....		82
Other Stoppings		418
Advice and Scaling		79
Irregularities of the Teeth		38
Miscellaneous.....		84
Total operations		1528

R. DESMOND ASHBY,
House Surgeon.

British Journal of Dental Science.

LONDON, MARCH 15, 1881.

AT page 299 of this number will be found a remarkable letter written by a gentleman who has the right to sign himself L.D.S.I. As he admits towards the end of his epistle, his subject has already been treated of almost *ad nauseam* in the pages of this Journal, and although we might have inserted his letter as being somewhat of a curiosity, we should not have thought it worthy of editorial notice were it not that we believe that it expresses, though in a very exaggerated and unreasonable style, a feeling which finds some place in the minds of many members of the profession. We all remember with what a flourish of trumpets the passing of the Dental Act was hailed. There was good reason for this; it was certainly "a great triumph," it did "mark the commencement of a new era in the history of the profession," in fact the occasion deserved all, or nearly all, that was said about it. But unfortunately people in general do not seem to have realised the fact that the Act would only take effect gradually and almost imperceptibly. They appear to have jumped to the conclusion that it would at once cause a revolution in the profession, and that its benefits would be immediately apparent. And now when nearly three years have elapsed since the passing of the Act, and when quackery, so far from being effaced, appears to be more rampant than ever, the late unfortunate decision of the Medical Council has caused in some quarters a sudden revulsion of feeling, and men are trying to persuade themselves that, as the Act has not done what they chose to expect that it would do, it has done nothing, and will do nothing.

To proceed to answer "Diomedes's" letter in detail would be an insult to the common sense of our readers. Some of his remarks, as, for instance, that about the *necessity* of chemists

practising Dentistry, are pure nonsense ; so we will confine ourselves to the last paragraph.

“Diomedes,” and others like him, fall into the mistake of looking at the subject solely from their own point of view. But let us put the case a little differently. Suppose that the medical profession had brought forward a Bill restricting the practice of Dentistry to legally qualified surgeons and suppose that the Bill had passed, what would “Diomedes” have said? Why, that it was a case of gross injustice, robbery, and confiscation. And our Bill would have been equally unjust if it had not contained provisions for securing to all any right of which they had already possessed themselves. The “members of foreign professions” &c., had been in the habit of performing Dental operations, not from any public necessity, but from choice and for profit, and to have deprived them suddenly of this liberty without adequate compensation would have been robbery and confiscation.

The Bill could only be passed by a series of compromises, and powerful opposition had to be bought off by suitable concessions. That the Act is perfect no one has ventured to assert, but that it is, taking it altogether, the best that could be obtained under the circumstances we firmly believe. That its immediate effects have been bad is true. It has raised up a most astonishing array of Dental quacks. These men have pushed themselves forward into unaccustomed publicity, partly from a desire to secure their position on the Register by making an evident display of “bonâ fide practice,” and partly in the expectation that their position on the Register would itself prove a sure stepping-stone to fortune. The decision of the Medical Council has now relieved their minds in one respect, whilst as to the other we fear that the majority must have been bitterly disappointed, and as their capital becomes expended and their credit exhausted, they will gradually take in their gaudy signs and show cases, and will return to their workrooms and chemists’ shops, poorer and possibly wiser men.

Before the passing of the Act there was no limit to the number of these pretenders ; now there is a strict limit. We knew the worst on August 1st, 1879, we have seen the worst

since. As Professor Turner remarked at the dinner of the Odonto-Chirurgical Society, time will of itself rapidly cure the evil which the Dental Act was passed to cure, but which it has temporarily tended to aggravate.

All this seems so trite and stale that we are almost ashamed to print it; but men, when suddenly disappointed of some pet hope, are apt to turn tail like sheep, and rush blindly into the depths of pessimism. We are quite willing to believe that "Diomedé" is, under ordinary circumstances, a man of good common sense and sound judgment, though one would not think it from his letter, and that even in his present bereft condition he is no worse than many of his neighbours and possibly better than some. We call upon all such not to give way to unreasonable fits either of panic or of temper, but to think over the matter calmly, and they cannot fail to appreciate the good which the Act has already done, especially in the impetus which it has given to Dental education, and to have faith in the still greater benefits which must accrue from it in the not very distant future.

Literary Notices and Selections.

THE DENTISTS AND THE COUNCIL.

It is only fair to the Medical Council, when considering the unsatisfactory position in which Dental registration now stands, to remember that the Dentists themselves have brought the trouble upon their own shoulders, although probably they can shelter themselves under the plea of defective legal advice. The resolution adopted by the Medical Council on the subject, on the motion of Dr. Quain and Dr. Pitman, was: "That, with reference to the Lord President's Bill, entitled Medical Act (1858) Amendment Bill, as 'ordered by the House of Commons to be printed on June 13th, 1878,' the Council desires to express its wish that the Bill entitled the Dental Practitioners' Bill be brought into conformity with the Dental clauses of the Lord

President's Bill." Now, if the Lord President's Bill (No. 216, 1878, House of Lords) be referred to, it will be seen that the registration clause ran as follows:—"If a scheme for the examination, licensing, and registration, under the control of the General Medical Council, of Dentists is submitted to the General Medical Council by any corporation, persons, or person, the General Medical Council may, if they think fit, submit such scheme to the Privy Council; and such scheme, when approved by the Privy Council, shall have effect as part of this Act, subject to being from time to time revoked, altered, and added to, by any subsequent scheme submitted by the General Medical Council to, and approved by, the Privy Council." It is obvious that, under these ample provisions, the Dental Association would have had the power of preparing a satisfactory scheme, excluding improper persons, and settling suitable schedules and forms; which scheme could have been thoroughly, carefully, and deliberately considered, and would have provided against the unpleasant circumstances which have now occurred. Instead of this, they adopted a scheme suggested by the clauses of the Medical Act of 1858—an Act which has had to be repeatedly amended, and which has never proved satisfactory in working. The General Medical Council have acted, in their interpretation of the clause, on a case drawn by the most eminent solicitors in London, and on the opinion of the law officers of the Crown. It is not easy to see how they could go beyond or behind the powers thus defined for them, nor to blame them if the instrument put into their hands has been thus defective. It is quite true that the President of the General Medical Council might have opposed the Bill actually passed, and caused its rejection, on the ground that it did not accord with the terms of the resolution of the General Medical Council; and we regret that he did not do so. It is impossible, however, severely to blame any medical person for not foreseeing difficulties which were neither foreseen by Mr. Tomes and his friends, nor by the draftsman who, acting for them and for the Government, prepared the Bill as it stands. Exaggerated blame, where none is fairly due, is short-sighted policy, as all forms of injustice are in the end. The sins and imperfections of the General Medical Council are enormous enough, and it has fallen already into a stage of discredit and decrepitude; but in this matter we are unable to say that it deserves many of the bitter reproaches which are urged against it in this particular respect. We may say the same as to the schedule of additional qualifications. The Council was anxious to have a schedule of additional qualifications, and framed one with a

column for the purpose; it was only upon the advice of the present Mr. Justice Bowen that no such column could properly be added, under the provisions of the Act, that they reluctantly withdrew it. Here, again, the fault is not with the Council, but with the draftsman; and Mr. Tomes, Sir John Lubbock, and their legal advisers, are the persons who were at fault, if any one, in the matter.

The above appeared in the 'British Medical Journal' of February 26th, and on March 5th appeared the following reply, written by Mr. Tomes.

SIR,—Owing to a partial examination and quotation of the minutes of the Medical Council, the article under the above heading in last Saturday's journal attaches unmerited blame to Sir John Lubbock, the Dentists, myself, and our legal advisers. In justification of the accused I must beg you will allow me to extract the following quotations from the Council's minutes:

Antecedent to Dr. Quain's motion (printed in the article) to the effect that the Dentists' Bill should be made conformable with the Dental section of the Government Medical Bill, the Council had passed the following resolution respecting the clause, for the omission of which in the Dentists Act we are blamed:

"Moved by Dr. Rolleston, seconded by Mr. Bradford, and agreed to: 'That it is not desirable that the Medical Council should be required to undertake to originate a new scheme of examination rules—Section (1) of Clause 23—but that it should be entrusted with some such supervisory power as regards the educational details from time to time proposed by the medical authorities authorised in the Duke of Richmond's Bill as it already exercises with regard to other examinations.'" (Minutes of Medical Council, April 13th, 1878.)

When the Medical Bill reappeared before the Council in July the Dental section remained, but, having become a dead letter, was not rediscussed. The clause objected to in April had in the interval received an addition whereby other bodies or persons might propose "schemes" for the consideration of the Council, but all questions relating to registration were governed by Clause (6) of the section, and put beyond the reach of "schemes." The following extract from the Council's minutes shows that the Government had determined to withdraw the Dental section from the medical, and to embody its provisions in the Dentists' Bill. In fact, the amendments necessary to its embodiment had been prepared by the Government draftsman before the Dentists'

Bill passed through Committee in the Commons; and the Bill passed with the understanding that the amendments referred to by Lord Sandon on the second reading should be introduced in the Lords:

“ July 1st, 1878.

“ In answer to a question from Dr. Quain, the President stated, in reference to the Dental Bill, which had reached an advanced stage in the House of Lords, that it was the intention of the Lord President to propose such amendments as would render the Bill similar to the Clauses contained in the Bill introduced by His Grace, should that Bill not become law.”

There was also read the following letter :

“ Office of the Parliamentary Counsel;

“ 18, Queen Anne’s Gate, Westminster ;

“ July 1st, 1878.

“ Dear Dr. Acland,—The amendments which are about to be made in the Dental Practitioners’ Bill in the House of Lords are proposed by the Government for the purpose of bringing the Bill into conformity with the Government Medical Bill, so as to place the Dentists in the same position as they would be in if the Government Bill passed with the Dentists’ clause in it, the principles of which have been approved by the General Medical Council.

“ The chief points of the amendments are as follows :

“ Penalties are imposed on a person taking a title he does not possess.

“ The right of prosecution for taking the name of Dentist is restricted in the same manner as in the Medical Bill.

“ A provision for the registration of colonial and foreign practitioners similar to that in the Medical Bill is inserted.

“ The system of registration with local registrars, as well as a central registrar, and the provisions for erasing a name from, and restoring a name to, the Register, are assimilated to those of the Medical Bill.

“ Power is given to the Privy Council, on the representation of the Medical Council, to prohibit an authority requiring the adoption of any particular theory.

“ Provision is made for the examinations being under a joint board when established.

“ Words respecting the application of the fees for public purposes, museums, &c., similar to those in the Medical Bill, are inserted.

(Signed) “ H. JENKINS.”

Dr. Quain’s motion was, therefore, superfluous ; moreover, it was proposed just before the meeting of Council broke up, on the afternoon of the day on which the Dentists’ Bill had

passed through Committee. On the following day it passed the Lords, having lost two and a half of its original ten pages, and gained eight and a half by amendments, making its present complement of sixteen pages.

I need not go further to show that the accused cannot be held responsible for the alleged faulty registration clauses. I say alleged, because their inadequacy has not been determined by a court of law, but rests only on an opinion which is traversed by an opinion previously obtained by the British Dental Association. In respect to additional qualifications discussed in the article, it has been determined that medical qualifications, merely as such, are not registrable in the Dentists' Register; but whether a diploma given by a medical authority, when taken as an addition to a Dental qualification, expresses or implies a degree of knowledge available in the practice of Dental surgery higher than is expressed by the licentiatehip held singly, can be determined only by a careful examination and comparison of the curricula, and examinations necessary to the acquisition of each qualification; and this has yet to be done. If it can be shown that the conjoint diplomas do express a higher knowledge than the licentiatehip held singly, the right to the entry of the additional qualification will, as it appears to me, be established. That the added diploma gives other than Dental rights, or that it would, when held singly, be incapable of registration in the Dentists' Register, does not, I think, affect the question.—I am, &c., JOHN TOMES. Caterham; February 28th, 1881.—*Brit. Med. Journ.*

ON RESTORING THE ACTION OF THE HEART WHEN IT HAS CEASED TO BEAT.

THE subjoined letters, which have recently appeared in the 'British Medical Journal,' contain valuable hints which may possibly be of service to some of our readers on an emergency. Although we all hope we may never be called upon to carry out these suggestions, we trust that all will read them carefully and bear them in mind.—ED. 'B.J.D.S.'

What are the best and *immediate* remedies?—it is a very serious question for a man standing before a patient who is to all appearance dead. How long may a heart cease to beat and yet resume its action? Having *entirely* ceased to act,

can the motion of the heart be ever restored? The fatal results from chloroform, &c., seem to demand renewed attention; and therefore I venture to make some suggestions as to what may, or ought to be done for renewal of the heart's action, in the hope that my remarks may induce other and abler men to discover the most successful treatment.

Does chloroform, as now made, differ in any way in its composition? and is it more dangerous than when first introduced? It seems to be so. Perhaps chloroform requires further investigation by the chemist.

When the heart, under chloroform, has suddenly ceased to act, galvanism and electro-magnetism have been remedies; but now we are told that these do more harm than good. Judging by results, it appears to be very doubtful whether the heart is much influenced, one way or the other, by the electro-magnetic or the galvanic machine as at present used, when one considers the anatomical relations of the heart. I am open to correction; but apparently the current must reach the heart in a very roundabout way; and it looks as if it would be just as useful to pass, if possible, a current through the heart by applying one pole of the battery over a femoral and the other over a carotid artery.

I wish to call attention to two other methods for inducing the action of a suspended heart, viz. acupuncture and percussion.

First, as to acupuncture of the heart. We know that needles, &c., have traversed the body harmlessly in all directions, or have remained quiescent therein for many years, and ultimately have appeared at the surface of the body. I am not aware that acupuncture of the heart during a misshap from chloroform, &c., has ever been tried; and I cannot find anything about it in such books as are within my reach. It has occurred to my mind that acupuncture of the heart should be tried by practical physiologists, who have the appliances and the *lawful right* to put it to the test on animals. It may not be so dangerous to human beings as it looks if done in the following manner, viz.:—Introduce a needle (with a handle to it like a cataract needle, the needle to be of the usual size, but two or three times longer) between the ribs near the apex of the heart; prick the heart lightly, and instantly withdraw the point of the needle clear of any possible movement of the heart; watch the result, and repeat the act as often as may be judged necessary. Experiments on animals would soon prove whether this operation could be recommended or not for such desperate conditions.

There is another method of restoring a suspended heart's action, which is simple, and, so far as I can judge, quite

safe; viz. by percussion. Some time ago a Dentist, who had given bichloride of methylene, sent for me. I found a young and very healthy-looking woman lying back, insensible, in the Dentist's chair. The pulse and respiration had ceased for so alarming an interval that her case looked very bad indeed. Holding her wrist to feel her pulse, it occurred to me to give to her one *sharp, very sudden* blow with my knuckles over the region of the apex of her heart. This appeared to produce the desired result: the patient gasped, drew a good inspiration, and a pulsation was at once felt at the wrist. But this is only one case; and, as one swallow is no proof of summer, it may not be a true instance of cause and effect after all; yet I feel sure that that sharp rapid blow over the apex of the heart saved the patient's life. I have had no chance of trying percussion to a dangerous case under chloroform; yet percussion seems worthy of further trial.

Similar means may be tried in cases of drowning—in conjunction, of course, with the methods at present used; also in desperate cases of syncope due to other causes.—FREDERICK W. P. JAGO, M.B. Lond., Plymouth.

ON reading Dr. Jago's article, it reminded me of an experiment in my college days. I do not remember what induced me to kill a mouse by a blow on the head, and rip it open, to see the heart beat. It did not. I pricked it with a needle, and set it a-going. It stopped after a time; then I gave it a second prick, and a few pulsations were distinctly seen. When I was in petticoats, my father was sent for to a girl in a fit. He was out; and, when he came home, was informed of the fact. "How long since? and any second message?" Being told, he thought he need not go. My mother suggested he "ought to go," which he did. He found the girl dressed in her grave-clothes, and "laid out" on a linen-covered table. He examined her, and found some warmth over the heart. He ordered hot water to be brought, not scalding hot, and poured it into a jug, tore her shroud open, stood on a chair, and poured a continuous stream of hot water, until the throbbings of the heart were distinctly seen. That girl was the mother of several children before I left Scotland, in 1848. My mother used to laugh, and take her share of the credit of her restoration to life. An old man here, Robert Robinson, several years before his death, took a fit, and apparently expired on the floor, where he was dying, pulseless and breathless. The heart had ceased to beat; and I was told that "he was beyond any doctor's power now." I felt some warmth over the heart,

and tried my father's remedy; and, to the wonder of spectators, the septuagenarian revived, and lived several years afterwards. Hot water can easily be obtained; and no one can object to such an experiment.—J. C. REID, M.D., Newbiggin-by-Sea.

IN the recent numbers of the 'British Medical Journal,' the articles appearing under Clinical Memoranda in reference to the restoration of the heart's action, have attracted my attention. The importance of the subject leads me to presume upon offering a suggestion. The simple and efficient instrument known as "Corrigan's button," invented by the late eminent Irish physician whose name it bears, might be used with success as a means of arousing a non-working heart to action. The method of its application for the purpose under consideration might consist as follows: holding the instrument so that the tip of the index finger would rest on the metal portion one inch from the bend of the shaft, and placing the disc in the flame of a spirit-lamp until the metal is so warmed that the finger can just bear the heat; then, over the region of the heart, quickly give a few taps—short, sharp, and decisive, imitative of a postman's knock. By this method, two incentives for action are combined: the effects of the tapping itself, and the shock of the quickly applied heat—more potent, perhaps, than electricity. Whilst believing that the best and neatest method of acting is by using a heated "Corrigan's button," yet, in an emergency, an ordinary metal spoon or iron key, warmed in the flame of a candle or gas-jet, might be used instead, as has been before suggested by many distinguished physicians for sciatica.—JOHN F. L. MULLIN, M.D., Mount Place, E.

DEATH UNDER CHLOROFORM.

DR. HARDWICKE yesterday held an inquiry at the Paddington Coroner's Court as to the death of William Eustace Witney, aged fifty-four, a cab driver, of 4, Eversholt Terrace, Kensal Road, who expired at St. Mary's Hospital on the 19th ult. under the influence of chloroform.

The widow of deceased stated that he left home on the 17th in good health. He was a night cabman, and she did not see him till Friday evening, when he came home, and said he had been locked up all night. He complained that his arm had been injured, that he had been thrown into a

gutter and kicked by a policeman, that while at the station he had to lie on the bare boards, but that when he went before the magistrate he was immediately discharged. On Saturday, at eleven o'clock, he went to the hospital about his arm, which he said had been twisted, and at three in the afternoon she heard he was dead.

William Witney, of 46, Richmond Street, Maida Vale, son of deceased, said when his father was discharged by the magistrate, finding his arm was much injured, witness went with him to St. Mary's Hospital. It was found his shoulder was dislocated, and some of the doctors tried to set the arm, but without effect. At one o'clock they determined to put deceased under chloroform. Hearing this, he warned them not to give it him, because he had been without food many hours. The surgeons, however, went on administering the chloroform, and whilst doing so he noticed the change in his father, and called out to them, "Leave him alone. He is dead." They then applied the galvanic battery, but without effect.

Police constable Herbert Hammond, 478 X, deposed to taking deceased into custody at eleven o'clock on Friday morning in Westbourne Park Road, believing him to be drunk. He had fallen down. Another policeman came up, and with much difficulty they got him to the station, where he was charged and locked up in the usual manner. At three o'clock, although considered too intoxicated to go before a magistrate, yet at five he was discharged on his own recognisances. He did not complain to the magistrate of police ill-usage.

Mr. J. E. Lane, house-surgeon to St. Mary's Hospital, said when deceased was brought to the hospital he found his left shoulder dislocated. He tried to reduce it, but could not, whereupon it was determined to administer chloroform. After the administration deceased struggled very much, then the respiration ceased. Artificial means were resorted to, including injections of brandy, but without avail. He was dead. In reply to questions by the jury, the witness stated that chloroform was the only anæsthetic used in the hospital, and when he asked deceased how he met with the injury, his reply was that the police had twisted his arm.

Mr. A. J. Pepper, pathologist to St. Mary's Hospital, who described himself as an "independent" witness, stated that he had been asked to make a post-mortem examination. Externally he found a bruise over the left eyebrow, and a cut on the left cheek. Dislocation of the left shoulder had been reduced. Internally, the brain and other organs were healthy, except the right side of the heart, which was gorged with

blood, and he believed that the cause of death was failure of the heart's action, caused by the strain whilst struggling under the influence of chloroform.

The jury ultimately returned a verdict "That the deceased died from failure of the heart's action, caused by the administration of chloroform whilst reducing a dislocation of his shoulder, and that the death was caused by misadventure.—*Daily Telegraph*, Feb. 23.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, 7TH MARCH, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

MR. CHARLES MACNAMARA exhibited a patient from whom he had removed a sarcomatous tumour of the upper jaw, and read notes of the case. The patient, a married woman, aged 51, was admitted into the Westminster Hospital on January 29th. She had generally enjoyed good health, and there was no history of hereditary disease in the family, but she had suffered severely from toothache, and almost all her teeth had been extracted. She had first noticed a swelling of the right upper jaw about fourteen months before her admission, and from that time it had gradually increased in size. There had been little pain in the tumour itself, but during the last three months she had suffered severely from neuralgia, affecting the right lower eyelid and side of the nose. On examination it was found that a firm solid tumour occupied the maxillary process of the right superior maxillary bone; it did not extend back to the soft palate, nor project into the nasal or orbital fossæ, and there was no enlargement of the neighbouring lymphatic glands.

On February 5th Mr. Macnamara removed the tumour by making an incision through the upper lip, along the right ala nasi, and across the cheek to the malar bone. The alveolar process was then divided to the right of the symphysis with a Hey's saw, together with the nasal process of the superior maxilla and the malar bone, completing the

separation of the tumour with bone forceps. The wound was plugged with lint, and the edges of the incision brought together with silk sutures. The patient made a rapid recovery, and although the scar on the cheek was still very visible, it was fast becoming obliterated, and she was even now less disfigured than she was before the operation.

The tumour proved to be an osteo-sarcoma, that is to say, it was a perverted growth of the normal elements of the part. Tumours of this class occupied an intermediate position between simple benign growths and the undoubtedly malignant varieties of carcinoma. If left alone they were apt after a time to soften, and portions might then be carried by means of the blood to the lungs or other internal organs, which might thus become infected. It was, therefore, important to remove them at an early stage, and it was specially necessary to do so if it was evident that the tumour was increasing in size. In a certain number of cases, however, they might remain stationary for years, and give but little inconvenience; under these circumstances it was not necessary to interfere with them. In such cases the perverted action subsided in the affected tissues, the medullary cells resumed their normal functions, ossification of the morbid mass took place, and it was only necessary to leave well alone.

Mr. Macnamara handed round a cast taken by Dr. Walker before the operation, and showed also some sections of the growth under the microscope.

Mr. BUTLIN said that there was one remarkable feature about the tumour which Mr. Macnamara had not referred to. On examining the sections under the microscope a number of small rounded or oval bodies would be seen here and there; they were homogeneous, highly refractive, and marked with fine parallel lines concentrically arranged. These bodies, which were composed of calcareous matter, had only been noticed in three other cases, and these had all been tumours of the lower jaw, and in all three cases the patients were young. This case was, therefore, exceptional both as regarded the age of the patient and the situation of the tumour.

Mr. COLEMAN remarked that the diagnosis of such a case as this at an early stage would rest between sarcoma and a dentigerous cyst. An important distinction was that the latter did not give rise to pain in the early stages. He instanced the case of a patient who came to the Dental Hospital complaining of severe pain in the upper jaw on the left side. The jaws, which were fixed, were opened under chloroform, and it was found that the third molar was not

erupted; to make room for this the second molar was extracted, then, as the pain continued, the unerupted third molar was removed, and, as this did no good, some roots were removed from the upper jaw. Still there was no improvement; on the contrary, the patient lost flesh, and at the end of three weeks a swelling appeared at the site of the extracted molars. The patient now went into St. Bartholomew's Hospital, and the swelling, which rapidly increased in size, proved to be a sarcoma. The presence or absence of pain might thus be a valuable aid to diagnosis in such cases.

Mr. CHARLES TOMES said he had seen the round bodies spoken of by Mr. Butlin on several occasions in tumours connected with the teeth, and was not aware of their great rarity. He had seen them in a case of great hypertrophy of the gums and in an ordinary fibroid epulis. They appeared to him to be closely related to the round concretions called calco-spherites, which were formed wherever salts of lime were precipitated in presence of organic matter.

The PRESIDENT remarked that he believed this had proved to be a "round-celled sarcoma," and asked whether this form was not generally considered to be of a more malignant type than the "spindle-celled" variety.

Mr. MACNAMARA said that, with respect to the question of malignancy, he would rather be guided by the history of the case than trust to the microscopic appearances of the tumour; rapidity of growth was the most important guide. Such a growth as that mentioned by Mr. Coleman was malignant, no matter what its structure might be.

Dr. WALKER exhibited models showing what might be done in a case of irregularity of the dental arch by three-weeks' treatment with constant supervision. The patient, a young lady, had been under his care for some months, but she attended very irregularly and little good was done. At last he insisted that she should come and live near him, and should pay him a visit every morning. This having been agreed to, he fitted a vulcanite denture, with a circular bar external to the teeth resting on the external alveolar ridge; the irregular teeth were attached to this by ligatures, which were changed daily. Under this treatment the case at once began to improve, and had since progressed most satisfactorily.

Mr. JAMES PARKINSON showed some forceps which he had devised for the purpose of carrying amalgam to awkwardly situated cavities in back teeth. By the use of this instrument the risk of the amalgam getting wet was greatly diminished.

Mr. BETTS showed some temporary and permanent canines with abnormally bifurcated roots, similar to those exhibited by Mr. Coleman at the preceding meeting.

The PRESIDENT then called upon Mr. Charters White to read his paper on the "Histology of the Gustatory Organs of the Tongue."

Mr. WHITE said he proposed to lay before the Society that evening some interesting details relative to those remarkable bodies known in histological anatomy as the gustatory or taste bulbs. He began with a sketch of the minute anatomy of the structures composing the dorsum of the tongue, and especially of the circumvallate papillæ, it being in them that the taste bulbs were chiefly found; the description was illustrated by diagrams. Having briefly described the microscopic characters of the surrounding tissues, he went on to explain in detail the histology of the gustatory bulbs. When isolated these bodies closely resembled a flower bud before it is expanded, and by breaking up this bud it could be resolved into its primary histological elements. It was composed of from fifteen to thirty long narrow cells of a granular texture, and containing a large nucleus; the cells stood closely compressed round the axis of the bud, the outermost being more concentrically curved than the rows more interior to them. The cells of the innermost layer were of a different character to the others, being highly organised and specially differentiated; in all probability they might be regarded as continuous with the terminal fibres of the glosso-pharyngeus, though their connection with the terminal filaments of this nerve had not yet been actually traced. If a cross section of a papilla be made we may cut off the upper portion or neck of one of these bulbs, and upon looking into the upper half of the section we may perceive a small hole surrounded by epithelium, through which the pointed neck of the flask projected; this was called "the gustatory pore." And on making a very thin vertical section of the papillæ we can see that the innermost layers of the bulba really pierce this gustatory pore and protrude from its orifice in a short and very fine hair-like process. A comparative examination of these organs in other animals, especially in the frog, furnishes us with such a constant recurrence of this histological element that we are justified in considering these hairs as important factors in the function of taste. In conclusion, Mr. White referred those who wished for further information on this interesting subject to an exhaustive paper by Professor Englemann, which would be found in Stricker's 'Human and Comparative Histology.'

The PRESIDENT, after thanking Mr. White for his interest-

ing paper and for the skilfully prepared specimens which he had presented to the museum, asked whether it was supposed that these bulbs were the only means by which taste was perceived? Did they occur on the palate or in connection with the lingual branch of the fifth nerve? It was a well-known fact that the use of an upper suction case would cause loss of taste, but he did not think that the cause of this had yet been satisfactorily explained.

Mr. STOCKEN said he thought this impairment of taste was due to the irritation caused by the presence of a foreign body in the mouth. It was only temporary; the perception of taste was regained as soon as the tongue became accustomed to the new material with which it was brought into contact.

Mr. FELIX WEISS, jun., remarked that few people had any idea how largely we were dependent on the sense of smell for our perception of flavours. It was a common experience that the power of tasting was lost when the mucous membrane of the nose was affected by a cold, and the same effect might be produced at any time by merely clamping the nose with the finger and thumb. Probably one third of the flavours we perceived reached us through the sense of smell.

Mr. COLEMAN asked what was the diameter of the orifice of the flasks, and had they any power of contraction and expansion?

Mr. HUTCHINSON asked which was the best mode of preparing for the microscope such sections as those shown by Mr. White, so as to make the nerve fibres as distinct as possible?

Mr. IBBETSON described an interesting experiment which had been practised upon himself many years ago in Paris, when he was attending the lectures of Dr. Margolin. A solution of bitter aloes was painted over his palate, but he tasted nothing. He was then told to swallow and directly the dorsum of the tongue touched the palate he became at once conscious of the nauseous flavour.

Mr. WHITE, in reply, said that the glosso-pharyngeus was undoubtedly the principal nerve of taste, and the part to which it was supplied, viz. the base of the tongue, was the chief seat of this sense. The orifice of the flasks measured about $\frac{1}{200}$ th of an inch in diameter; they did not appear to be possessed of any power of independent movement, but they were very mobile and were no doubted affected to some extent by the action of the subjacent muscular tissue of the tongue. Osmic acid was the best reagent for showing nerve tissue with which he was acquainted. He intended to try

staining with chloride of gold, but could not at present recommend it from personal experience.

The PRESIDENT then announced that at the next meeting Mr. Stocken would read a paper "On the Value of certain Remedies in the Treatment of Neuralgia," and after a vote of thanks to Messrs. Macnamara and White and the other contributors of the evening, the meeting terminated.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

WEDNESDAY, FEBRUARY 16TH, 1881.

THOMAS EDGELOW, M.R.C.S., President, in the Chair.

The HON. SECRETARY read letters from Mr. F. B. Imlach, President of the Royal College of Surgeons of Edinburgh, and from Dr. Joshua Tucker, President of the Society for the Advancement of Oral Science in America, acknowledging the compliment paid them by their election as honorary members of the Association.

The PRESIDENT then made a few remarks on taking the chair: Gentlemen, it is my most evident duty and sincere pleasure on succeeding the past occupiers of this chair, and filling it for the first time, to return you my warm thanks for the honour you have thought fit to bestow upon me. I will not affect to deny that I have accepted your kindness with some misgivings as to my personal fitness for such a responsible position; and you must allow that, following as I do in the wake of such distinguished presidents as this Association has had the good fortune to have secured—gentlemen bearing names so well known and so deservedly honoured wherever Dental surgery is practised—your chairman has need of qualities of no ordinary character to worthily preside over your deliberations. But while deeply conscious that I cannot lay claim to the great experience of my predecessors, I at all events will claim to be no whit behind them in devotion to the objects for which our Association has been founded. At our last meeting our late President, in his valedictory address, alluded to an imminent meeting of the General Medical Council. That meeting has taken place, and, as a result of its deliberations, the condition of the Dental Register, and the claims to remain upon it of the heterogeneous elements of which it is composed, have been more definitely pronounced upon than at any time since

the passing of the Dentists Act. The conclusions arrived at (were there no hope of obtaining an amendment or repeal of the Act, or a distinct recognition in the new Medical Act of the status of the surgeon practising our specialty) cannot but be regarded with dismay by all interested in the welfare of the profession. The Dental Act, which in its present form was opposed by our Association, and which was passed without receiving that amount of consideration its importance deserved at the hands of the medical profession generally—no doubt through a misapprehension of the effect it would have upon those of their brethren who might select the practice of Dental surgery as their specialty—this Act has now so signally failed as a practical measure that its very authors must, one would imagine, be heartily sick of it. It has even proved too comprehensive for them, and a great number of names withdrawn from the Dental Register at the suggestion of the British Dental Association, are now to be restored triumphantly to the lists. In fact, gentlemen, I very much regret to state that of the 5000 and odd names that have been entered on this Register, one name alone has been expunged by the Council; this being so flagrant a case of professional misconduct that no alternative was possible. It is also now settled by counsel's opinion that the Executive and Dental Committees have no power to originate proceedings for the removal of any name from the Register, but that all initiation of proceedings to effect this object must rest with the General Medical Council itself. The Council has been advised that it cannot delegate to the Executive Committee any duty which is in its nature judicial; and as it meets, as a rule, only once a year, what hope is there of seeing the list so purged that it shall exclude even the names of flagrant offenders? Another point to which I especially wish to direct your attention is one that permits only the purely Dental qualification to appear on the Register. As long ago as December, 1878, one of the Fellows of this Association applied formally to have his surgical titles entered, but without effect; and now this refusal is pronounced by counsel to be only in harmony with the Dentists Act, which forbids any registration of titles other than purely Dental ones, and should contain no reference "to other qualifications to practise in either medicine, surgery, or pharmacy The practitioner in Dentistry is to be registered in respect of his Dental qualifications only, and the Council need not inquire as to his rights to practise medicine, surgery, or pharmacy." Thus the Dental Register will be very simply and easily divided into two sections: one containing only the purely Dental qualification, the other no

qualification appended at all. Thus the surgeons and those without qualifications of any kind (including those against whom unsuccessful action was taken by the British Dental Association) are to be left indiscriminately mixed up, and the licentiates are to pose as the only true representatives of the qualified profession. But while our Association has never failed to recognise that the licentiate has a distinct advantage over the unqualified practitioner, and while it recognises and strives at the general elevation of the profession that undoubtedly has arisen from the higher state of Dental education resulting from the institution by the College of Surgeons of its examination in matters purely Dental, its very name and constitution would forbid it to sit down quietly without protesting against such an anomalous state of things. It will now become a matter for the personal consideration of those Fellows of our Association, whether, under these circumstances, it would not be desirable for them to withdraw their names from the Dental Register (should they have placed their names on it), and to content themselves with their position on the Medical Register. What action should be taken by this Association at the present juncture will receive the careful consideration of the Council, and whatever form this action may take, its action will certainly be to strengthen the bonds already happily existing between ourselves and the medical profession—of which profession we have always claimed to be an integral part; and we shall jealously watch against, and to the best of our ability oppose, any action, from whatever source it may emanate, that would seek to loosen ties which we trust and believe will prove to be indissoluble. The present state of affairs is keenly felt, not only by ourselves, but by many others not Fellows of this Association. I allude to gentlemen who have passed through the curriculum necessary for the “L.D.S.,” which degree they have obtained by examination. Can it be wondered at that their feelings have also been outraged, when the Dental Register sweeps into its net such curiosities as hairdresser-Dentists and other equally extraordinary combination-Dentists, if I may use such a term? A letter in the ‘Journal of the British Dental Association’ for January, from the pen of Mr. Harding, gives expression to a righteous and widely felt indignation at the disgraceful advertising which still proceeds unchecked, &c., and a desire that such names (of those advertising) should be expunged from the Register. His hopes have been doomed to disappointment, and all attempts to purge the Register have signally failed. It now only remains for this Association to continue true to the principles that have always guided it,

and we need not despair of yet seeing the time when the attempt so resolutely made by some from whom better things might have been expected to divorce Dental from general surgery will be acknowledged to have been a grand mistake, and when our specialty shall be recognised as standing on an equal footing with ophthalmic, aural, or any other special branch of surgery.

Mr. E. T. M. PHILLIPS, of Liverpool, then brought forward the following interesting cases:—Case 1 showed the models of the mouth of a boy aged fourteen, from whom the two roots of the first right lower molar had been extracted, connected with which was a small cystic tumour, the result of an alveolar abscess. Case 2 and 3 were examples of supernumerary teeth. Case 4 showed the altered appearance of the upper laterals from enlargement of basal eminences. Case 5 was a very curious condition, occurring in the mouth of a young lady aged fourteen, where on the left side the canine and first bicuspid were missing, but were erupted and in normal position on the right. Case 6 was one of rare occurrence, and was an example of the transposition of the canine and first bicuspid. Mr. Phillips thought the explanation of this transposition might be accounted for, probably, in the early removal of the temporary canine, thus allowing the first bicuspid to come close to the lateral incisor, and that the permanent canine, when erupted, not having room, had descended between the two bicuspids. This explanation seemed to him more likely than that the development of the teeth-germs had been altered. Case 7 was that of a child aged five, and showed the presence of the supernumerary teeth ranged in regular order with the others in the Dental arch, and it was a question which should be considered as the supernumerary ones.

Mr. W. A. N. CATTLIN exhibited four upper incisor teeth, with absorption of about one-half of their roots, which were loose and extracted from the mouth of a young lady aged only seventeen. There was no history of syphilis or mercurial poisoning, which was the most common cause of this disease; nor did it originate from a fall or blow.

Mr. FRANCIS FOX brought forward an example of a supernumerary tooth removed from the mouth of a boy aged eight. The tooth was placed in the centre of the upper jaw, between the two central incisors, which he regarded as somewhat uncommon, and raised the question whether it was a supernumerary tooth in relation to the milk or the permanent dentition. His opinion was that it belonged to the permanent set, as such teeth, when occurring in con-

nection with the deciduous series, were generally found in the lower jaw.

Mr. CATTLIN passed round a piece of the inner plate of alveolus of the lower jaw, which snapped off during the extraction of a molar tooth. No unusual force was used, but the plate of bone looked as if it had not been covered by periosteum at the time. It had an opaque appearance, but was not necrosed.—*Med. Times and Gazette.*

ODONTO-CHIRURGICAL SOCIETY.

THE Annual Meeting of the Odonto-Chirurgical Society of Scotland was held in the Edinburgh Dental Hospital and School, No. 30, Chambers Street, Edinburgh, on the 11th inst. Mr. Walter Campbell, L.D.S., Dundee, President of the Society, in the Chair.

The SECRETARY (Mr. Macleod) read the minutes of the previous meeting, which were approved.

Mr. Joseph Holland, L.D.S. Ed. and Eng., and Mr. John Gowlay, L.D.S. Glasgow, were balloted for and elected members of the Society.

Messrs. James Shiack, of Elgin, and James D. Grant, of Jersey, were proposed for election by the President, and seconded by Mr. Cormack and Mr. Bowman Macleod respectively.

The following gentlemen were office-bearers for 1881-2:

President.—John Smith, Esq., M.D., F.R.C.S. Ed.

Vice-Presidents.—Joseph Walker, M.D., L.D.S., London, and Andrew Wilson, Esq., L.D.S. Ed.

Treasurer.—Matthew Finlayson, Esq.

Secretary.—W. Bowman Macleod, Esq., L.D.S. Ed.

Curator and Librarian.—George W. Watson, Esq., L.D.S. Ed.

Council.—Walter Campbell, Esq., L.D.S. Eng., Dundee; Leon J. Platt, Esq., L.D.S. Ed., Stirling; Malcolm Macgregor, Esq., L.D.S. Ed.; and Austin Biggs, Esq., Glasgow.

Mr. WILSON reported that the revenue for the year amounted to £42 8s., and the expenditure to £39 3s., leaving a balance in the Treasurer's hands of £3 5s. The reserve fund of the Society now amounted to £80 7s. 8d. He was glad to think that the Society was progressing very favorably.

Mr. G. W. WATSON gave in the report of the Curator and Librarian. He stated that they had received six volumes of

the 'British Journal of Dental Science' from Mr. James Taylor, L.D.S., of Tewksbury.

After some conversation, the PRESIDENT proposed that they should appoint a small committee, with powers to expend a sum not exceeding £20, for the purpose of obtaining copies of works connected with Dental science, which they might consider of importance for the Society to possess.

The suggestion was agreed to.

Mr. MACLEOD, Secretary, stated that he had received a letter from the President of the Odontological Society to the effect that the Secretary had been instructed to exchange 'Transactions' with this Society for the future. (Applause.)

A discussion took place on Mr. Watson's paper "On Secondary Hard Formations in Pulp Cavities; their Physiological and Pathological Signification." In this discussion Dr. Smith, Mr. Biggs, Glasgow, the Secretary, President, and others, took part, and Mr. Watson was thanked for his paper.

Mr. WILSON then read a paper "On Sectorial Teeth and their Modifications in the Carnivora."

The thanks of the meeting were given to Mr. Wilson for his paper.

Mr. MACLEOD said he had much pleasure in handing over to the custody of the Librarian an album which was ordered some time ago, and which already contained a large number of photographs of the members. He was sorry that the request for photographs had not met with the response which it deserved, and he trusted that those who had not sent in theirs would soon do so.

Dr. SMITH said that perhaps they would allow him, in contrast with the very handsome album, to present to the Society something that might be more curious, and that was the original draft of its laws, drawn up by himself in 1864. (Applause.)

The PRESIDENT said that he would have very much pleasure in handing over the document to the Librarian to take charge of it, and at the same time he had much pleasure in thanking Dr. Smith for the presentation he had made.

The SECRETARY presented a paper by Mr. Whitehouse, London, in which it was suggested whether it would not be well to offer £50 to the chemical world for the discovery of a permanent white filling.

It was agreed that the paper should be discussed at the next meeting.

Mr. CAMPBELL, the President, then delivered his retiring address, in the course of which he referred to the progress of the Society. He said that the Dental School and this

Society were intimately connected. They had one home as they had one object—the diffusion of correct principles as the result of research and practice in Dental science. (Applause.) The members of the Society were now by law recognised as belonging to a profession, but they need not shut their eyes to the fact that it would take some time ere they were recognised as such by the general public. The more they practised a kindly professional feeling amongst themselves the sooner would the public be led to recognise their true standing. (Applause.) He knew of nothing more likely to cultivate a professional spirit amongst Dental surgeons than the frequent intercourse which such societies as theirs afforded its members. (Applause.) Associated action in Dental, as in other learned societies, was undoubtedly a power in developing a high tone of professional spirit, it fostered and encouraged that zeal to find out the working of nature in health and in disease, and sought to spread that knowledge amongst its members for the benefit of mankind. (Applause.) This intercourse also created a spirit of charity and forbearance in judging of the operations of others who differed from them in their method of practice. After referring to the loss sustained by the death of Dr. Roberts, at one time President of the Society, Mr. Campbell resigned the chair to Dr. Smith, the newly-elected President.

Dr. SMITH then took the chair and returned thanks for the honour that had been conferred upon him in having been elected to fill the office of President of the Society.

On the motion of Mr. HARRIS, a cordial vote of thanks was given to Mr. Campbell for his address, and the proceedings then terminated.

THE DINNER.

In the evening the Annual Dinner of licentiates in Dental Surgery and members of the Odontological Society of Scotland, was held in the London Hotel. Dr. Smith, President, occupied the chair, and Mr. A. Wilson, L.D.S. Ed., was croupier. On the right of the President were Dr. Haldane, the President of the Royal College of Physicians, Mr. Campbell, L.D.S., Dundee, Professor Turner, Mr. Harrison, L.D.S., Sheffield, Dr. Ziegler, Mr. Macleod, L.D.S., Secretary of the Society, and Mr. T. R. Cameron, Paisley. On the left of the chair were Mr. Imlach, President of the Royal College of Surgeons, Mr. Duncan Hepburn, L.D.S., Dr. Littlejohn, Dr. Orphoot, Dr. Joseph Bell, Dr. Reid, L.D.S., and Mr. Matthew, L.D.S. Amongst others present were Mr. Leon

J. Platt, L.D.S., of Sterling, Mr. James Shiach, of Elgin, Mr. Alexander Cormack, L.D.S., Mr. Biggs, Glasgow, Mr. Macgregor, L.D.S., Mr. Syne, Dundee, Mr. M'Queen, Kilmarnock, Mr. G. W. Watson, L.D.S., and Mr. Stirling, L.D.S., Ayr.

Apologies were intimated from the Earl of Roseberry, Dr. Heron Watson, and Mr. Thomas Arnold Rogers, President of the Odontological Society of Great Britain.

The toasts of "The Queen," "The Prince and Princess of Wales and the other members of the Royal Family," were given and enthusiastically responded to.

The CROUPIER, in proposing "The Dental Diploma," said :—Chairman and gentlemen, in proposing what has been regarded as *the* toast at our annual gatherings ever since their institution in 1866, I will do so with a very short preface. It is now just twenty-one years since the Royal College of Surgeons of England began the issue of the Dental diploma, their first pass list being dated 13th March, 1860. When we consider the state of Dental politics at that time, and also the then almost complete absence of personal intercourse among the members of the Dental body, it is not at all surprising that there was a failure on the part of the vast majority to appreciate its value, present and prospective. The result was that, speaking broadly, only those practising in London and those who, practising elsewhere, kept up close relations with London, went in for it. And this tendency to its becoming a merely local honour was still further aggravated when the College closed its doors to candidates *sine curriculo*, and a residence of two years, at least, in London became necessary. The setting the door slightly ajar afterwards checked this so far, but the numbers who received the diploma after 1863 barely kept up the numerical strength of those holding it. The passing of the Dental Act, by making the possession of the diploma by the Dentists of the future imperative, and also empowering the Royal College of Surgeons of Edinburgh, Royal College of Surgeons of Ireland, and Faculty of Physicians and Surgeons of Glasgow, to grant it, changed all this. These bodies most liberally at once placed the diploma, by their *sine curriculo* examination regulations, within the reach of all respectable practitioners willing to exert themselves; and although this has not as yet been so largely taken advantage of as one would have expected, still less wished, the numbers holding the diploma have largely increased. In conclusion, I would strongly urge upon those intending to go in for the diploma, and more especially those long in practice, not to delay in carrying out their good intentions, as the longer they pro-

crastinate the more powerful will be that *vis inertia* they have to overcome, and which if left undisturbed would, to all intents and purposes put as decided an end to *sine curriculo* candidates as if the College of Surgeons closed their doors against them. (Applause.)

Dr. HALDANE said he had great pleasure in proposing "The Odonto-Chirurgical Society of Scotland." (Applause.) It was, he must say, a term with which he had not been very long familiar; in fact, till he received a very agreeable missive two or three weeks ago, he was ashamed to say he was not aware of the existence of the Society. Since that time he had made inquiries, and the result of these inquiries had been entirely satisfactory. He had been led to believe, and he truly believed, that this Society was a most valuable institution in Edinburgh. He had been told that the idea of originating a society of that kind had been made many years before by a dear friend of his own—Mr. Naismith. But whether or not he understood that this Society was established in the year 1866. Since that time it had progressed, its membership had increased, and the contributions that had been made to its 'Transactions' had been increased both in number and value. He was glad to know that at the annual meeting that day several papers had been read of a very scientific and valuable character. The good that could be effected by a society of this kind could not be over-rated. It brought together the *élite* of the profession, and they gave a tone to it which would gradually descend and percolate through it. A society of this kind was calculated to be of the very greatest benefit in that way, and the fact of their meeting together several times annually and bringing before them papers of an interesting and scientific character showed how good their work was. (Applause.) In regard to the present meeting he might say that he had enjoyed himself exceedingly, and he had the greatest pleasure in coupling with the toast the name of Dr. John Smith. (Applause.) He and Dr. Smith had entered the medical profession at the same time, and had always been more or less associated together since then. They had met together abroad, they had known each other constantly in Edinburgh, and he could say that a better man than Dr. Smith he never knew. (Applause.) His talents were not confined to his own branch of the profession, but they were recognised in the fact that he was a member of the Council of the Royal College of Surgeons, and he was one in whom they had in every respect the greatest pleasure in recognising as one of their most prominent members. (Applause.)

The CHAIRMAN said he had great pleasure in rising to

respond to the toast which had just been proposed. He thought he might congratulate the Society on the flattering terms in which it had been proposed, and the warm manner in which it had been received, as an evidence of the fair fame of the Society, and of the stability of the Dental profession. While he congratulated the Society on its prosperity, he congratulated himself on the position in which they had placed him this evening as representing this Society at their annual symposium. (Hear hear.) If he could have any additional pleasure in this, it was that he was replying to the remarks of his old friend, Dr. Haldane. The success of this Society was the outcome of the establishment in Scotland of the Dental Act, and he was sure that they all appreciated the good wishes that had been expressed towards the Society. And while they exulted in its prosperity, he very much feared that the outside world knew little of the difficulties, of the opposition, and of the bitter controversies that had to be encountered and overcome, and before the Society had been placed on the pedestal which it now occupied. However, he thought the success of the enterprise and the bright example it set before them would lead them to see that the determination to accomplish what they considered to be a good object would do wonders if persevered in. Considering that the end they had in view had been attained, it would be needless to rake up the keen opposition which had been offered to their exertions, and therefore he would say nothing more in regard to that. As to the Society, he did not think it would be expedient to occupy their time in making any observations, as there were many present who knew more about its details than he did. Suffice it to say that while the Odonto-Chirurgical Society had done all that was expected of it in the past, he believed it would do no less in the future. (Applause.) With regard to the membership of a society of this kind, he knew it would be said by some of those lions in the path he had alluded to, that a little learning was a dangerous thing. He did not deny that, but he thought it was a better thing to have a little learning than a great mass of ignorance. (Applause.) So far as a little learning was concerned, all those who sat round that table, and all those who had an opportunity of knowing what went on at the examining board, knew the amount of learning possessed by the candidates, and they knew that the majority came up with an amount of learning that would have done them credit even if they had been candidates for a higher and more extensive degree. (Applause.) He had no hesitation in saying that they would stand second to none in the kingdom in regard to such an examination. He concluded

by thanking the company for the manner in which the toast had been proposed, and the way it had been responded to.

After a pause,

Dr. SMITH said: I find the duty of proposing the next toast devolves upon the Chair. It is that of "The Odontological and sister societies," and as all these sisters are ladies for whom we entertain the greatest admiration and the warmest regard, I feel assured that this toast will secure that chivalrous and affectionate reception which the sex may always look for commanding at the meetings of the Odonto-Chirurgical Society. (Applause.) At a meeting of this kind I consider that the shorter any remarks are the better, especially on a subject the detail of which every one present may be expected to know, and I would merely remind this assemblage of the fact that at the first meeting of the Odontological Society of London in January, 1857, its first president, Mr. Cartwright, in summarising the objects it had in view, stated the grounds on which the foundations of all similar and subsequent societies ought to be based, and were desirable. These were, that such societies should be a point of union for members of the profession to meet each other in friendly intercourse for the communication of purposes of interest to Dental practitioners being discussed, and for the gathering in of literary contributions on Dental surgery, so as to be more available to practitioners than they were when scattered through the pages of the different medical journals. (Applause.) With these objects in view the Odontological Society was formed, and since its foundation it has contributed in every way to promote those great advantages made by this department of surgery within the last quarter of a century. The sister societies now constitute a considerable family, modelled to a great extent on the principles of the Odontological, and with it have maintained and are maintaining that feeling which pervades and does honour to the practitioners of this branch of surgery, namely, that a professional position and title are in no other manner justly to be accorded them than by ascertaining through a rigorous examination the knowledge and acquirements possessed as fitting for such distinctions. (Applause.) In these respects, and in disseminating and enforcing such principles, these societies have been of much service. No doubt at times, and more particularly during the earlier periods of their career, the Odontological Society and its sisters have been occasionally found "Fickle, coy, and hard to please," sometimes even "variable as the shades by the quivering aspen made." (Applause.) But like others of their sex, "when pain and trouble wring" what may metaphorically be described as the Dental brow, they have

always become ministering angels and done all they could, and done it effectually, in rendering excellent service to the cause they had at heart. (Applause.)

Mr. CAMPBELL then proposed the "Medical Council." He said that the first thing that naturally rose in his mind in proposing this toast was the conspicuous absence of one who so ably represented them at the Medical Council, namely, the late Dr. Andrew Wood. (Applause). He was sure they all remembered how very much and heartily they enjoyed being with him, and how much he assisted in their enjoyment with his happy, hearty, and genial song; and he was sure that they would all feel the loss which they had sustained through his death. However, what had been their loss was, he doubted not, his gain. Passing from that he said they, as Dentists, might be thankful that they had been taken under the care of so venerable a body as the Medical Council. He had no doubt that they would care for them in every particular, that they would take care that their Dental degrees were in all cases worthy of the name. They had been pretty severely criticised of late in connection with the recent action about the Dental Register. There was no doubt that there were many persons upon that Register whose names they would wish to see erased from it, and no doubt a few hundreds might have been erased from it. It was very easy to criticise bodies as well as individuals, but he had no doubt they had acted with all the wisdom that they had. But, although the wish for erasure of names had not been effected, still the evil was curing itself daily. The coming generation of Dentists would at least be educated and be worth of the name of professional men, and they might bear with the ills of the present, knowing that they were fast passing away. While they deeply regretted the loss of their representative, Dr. Andrew Wood, they had amongst them representatives of the Medical Council, who had shown themselves eminently qualified for the position they occupied, and also that they had taken a very deep interest indeed in the Society. He had much pleasure in proposing the toast, coupled with the name of their representative, Professor Turner. (Loud applause.)

Professor TURNER, in returning thanks, said he shared with Mr. Campbell all the sentiments he had expressed as to the great loss which, not only the Medical, but also the Dental profession, had sustained in the death of his dear friend Dr. Andrew Wood. (Applause.) He knew no man who took a keener interest in the welfare of the Dental profession than he had, not only in the Medical Council in connection with the various discussions on the Dental question,

when it was before Parliament and afterwards when the Act had been passed. When the regulations for the Dental diplomas had to be framed, there was no one who took a keener interest in these matters than Dr. Wood. In his official capacity, as representative of the Royal College of Surgeons of Edinburgh, he was deeply interested in the matter, and he along with Sir James Paget and others framed a scheme for Dental education and Dental examination, and the scheme which was at present in force in the Edinburgh College of Surgeons and other colleges was the outcome of the efforts of these gentlemen. He could assure his hearers that the Medical Council had taken a deep interest in all matters connected with the Dental profession. The duty of watching over the interests of the Dental profession was imposed on the Council by Act of Parliament, and he was quite sure that it was the wish of the Council that everything should be done that was possible to be done under the Act for advancing the interests of the profession. There had been some amount of obscurity in the phraseology of the Act, and there could be no doubt that that obscurity had prevented the Medical Council from striking off a large number of names placed on the Dental Register. The Medical Council was bound to admit the names of all persons who made certain statements as to their qualifications, and it was only after they had filled the schedule that the accuracy of the statement could be inquired into. When these statements were inquired into it was found that in some cases there was considerable doubt as to whether they were accurate. But the Medical Council felt that in interpreting an Act of Parliament they should not trust to their own powers, but should take the opinion of counsel learned in the law. They accordingly applied to the Solicitor-General of England and others as to the meaning of the Act, and the opinion which they gave was that the Council could not strike off the names of those persons. So far as he understood the opinion of these gentlemen, the names of persons could not be removed from the Register unless they had been guilty of unprofessional proceedings, so that a large number of names had been left on the Register which, but for this adverse opinion of counsel, would, he believed, have been removed. They would thus see that the Medical Council had many difficulties to deal with in connection with the working of the Dental Act. He fully believed that it was the intention of the framers of the Act that no one should be admitted to the Dental Register unless he had been in practice simply as a Dentist or as a Dentist in connection with the practice of medicine, surgery, or pharmacy. But

there were names on the Register of persons of whom that could not be said; but nevertheless the opinion of the Solicitor-General was that they could not be removed. He must ask them, therefore, in looking at the proceedings of the Medical Council in connection with the working of the Dentists Act, to do so leniently. Let them not be too hard in their criticisms, because they had many difficulties to contend with. His own feeling was very strong indeed that no one should be on the Register unless he could show that he had been in practice either as a Dentist pure and simple or in connection with medicine, surgery, or pharmacy. But that individual feeling of his was not one which the opinion of the Solicitor-General and others enabled them to carry out. He observed that they had not only asked him to respond to the toast of the Medical Council, but also to propose the next toast, "The Licensing Bodies" that were concerned in the profession of Dentistry, and who were in the habit of giving licences. Up to the present time there was no university in the United Kingdom that would come forward to give a diploma or licence to Dentists. The only bodies who had done so were the Royal Colleges of Surgeons of Edinburgh, England, and Ireland, and the Faculty of Physicians and Surgeons in Glasgow. A curriculum of study had been framed, and a line of examination had been suggested, and he believed that the various licensing bodies were carrying out, so far as lay in their power, the line of study and examination that the Medical Council had approved of. But there was difficulty in working out such an arrangement, because, in the present somewhat transitional state of matters, not only were persons to be admitted to examination who had gone through the regular course of study, but there were to be admitted also those who had not had the advantages of a regular curriculum. That was only what seemed to be fair and proper, because it was not to be supposed that gentlemen who had for years practised as Dentists should attend the schools to qualify for examination, and so very properly they did not insist on this in the case of gentlemen who had not been able from years or otherwise to attend the schools of Dental instruction. In connection with this matter, he must say that before coming to that meeting he had looked at some statistics in regard to the applications to the colleges, and the return was, he thought, a somewhat significant one. He found that to the Royal College of Surgeons of England eighteen gentlemen presented themselves for examination after going through the curriculum of study, and only one without the curriculum. That was to be explained on this

ground, that there had been for many years in London a school for instruction in Dentistry and a number of young men had prepared themselves for the examinations. In Edinburgh only five presented themselves, one with and four without the curriculum; that was to be explained in this way, that there had been here a Dental School only for two years, and only during that time had there been an opportunity for young men to go through instruction. The Faculty of Physicians and Surgeons in Glasgow gave in a return which showed that thirty-four gentlemen had presented themselves without the curriculum, and none with it. At the Royal College of Surgeons in Dublin fifty-five presented themselves without the curriculum, and none with it. He did not profess to give an explanation of that, but the facts were worthy of thought and consideration. He had much pleasure in coupling with the toast of "The Licensing Bodies," the name of his friend, the President of the Royal College of Surgeons—(applause)—a gentleman who was not only the president of the licensing body, but a distinguished member of their profession—(applause)—a gentleman who for many years had occupied a very high place in the Dental profession in this city, and who, he might say, for two years had occupied the very distinguished position of President of the Royal College of Surgeons of Edinburgh. He had endeared himself to the Fellows of that College from his high personal qualities, and he had worthily sustained the position of President. He was dignified in his manner and thoroughly enthusiastic in attending to the interests of the College. He knew no man who gave more thought or attendance to the Royal College of Surgeons than Mr. Imlach, who, on that account, and on account of the high position he held as a member of the Dental profession, commended himself to all who sat around the table. (Applause.)

Mr. IMLACH, in reply, said that he had much pleasure in returning thanks for the toast of "The Licensing Bodies," and to acknowledge the extremely kind manner in which he had been spoken of by his friend, Professor Turner, and for the equally kind manner in which the toast had been responded to. He might say, as one who had the honour of sitting at the examining board of the Royal College of Surgeons, that the public had a perfect guarantee that the candidates were not treated with undue severity, but that every one was perfectly sure, if he had honestly done his work, that the ordeal he had to pass through was just what he should have to go through, and what he should be able to accomplish. (Applause.) The licensing

bodies in this country stood in an honorable position, and they might rest assured that these bodies did their work most faithfully. He had much pleasure in returning thanks for the toast.

Dr. LITTLEJOHN proposed "The Dental Hospital and School." He said that he had always taken a great interest in the Dental School, and it was with much satisfaction he observed that lecturers were at once forthcoming, and that they passed not only creditable but most creditable examinations. (Applause.) They had to provide themselves with an hospital, the establishment of which was very much needed. He, as a director of the old dispensary, had much pleasure in handing over their goods and chattels to it. He had looked into the hospital and school, and being accustomed to look into such matters he must pay the compliment of saying that he had seen evidence of great earnestness and efficiency. He had been honored in being one of the examiners of the Royal College of Surgeons, and he must say that the gentlemen who came up for the Dental diploma would not have disgraced themselves if they had gone in for the higher examination. (Applause.) He spoke in the presence of those who knew how much in their extra-academical school they were indebted to those who took a leading interest in it, and he had the greatest possible pleasure in associating with the toast the name of the gentleman to whose energy Edinburgh was chiefly indebted for the establishment of the Edinburgh Dental Hospital and School. It was easy for them to carry on an extra-academical school, but they must consider how much was due to those who had struggled many years before to make it what it was; and therefore he had the greatest satisfaction in proposing the health of his friend opposite, Mr. Macleod, for what he had done for the Dental School. (Applause.)

Mr. MACLEOD returned thanks. He said he could not express how extremely flattered he felt in listening to the kind and eulogistic remarks made by their friend Dr. Littlejohn. He felt, indeed, that these remarks were not, however, intended so much for himself as for the institution which he represented in the capacity of Dean. It was no doubt true that one man might be the mainspring of any movement, but they must not forget that they must have the aggregate atoms that together made the movement a perfect one. He was happy to say that he had always had the advantage of the advice of Dr. Smith and Mr. Campbell, of Dundee, not to speak less lightly of others who had assisted them all along. It was those two gentlemen, however, that he had always specially consulted, and by whom he was

always warmly received. The valuable advice he had obtained from them resulted in the establishment of the Dental School and Hospital in the city. He might mention that since he was appointed Dean he had had communications from India, Germany, and other places from intending students in regard to the curriculum. He was happy to be able to send such information to those gentlemen as he had no doubt would satisfy them that the Edinburgh School was second to none in the kingdom. He then gave some illustrations of the working of the institution, and related some humorous incidents that had occurred in his experience.

Dr. JOSEPH BELL then proposed "The Licentiates in Dental Surgery." He referred to the very high class of men who had passed as licentiates, and said that the first batch were the highest, consisting of nearly all the teachers in the Dental Hospital. Some of them had shown their powers of teaching in a very special manner. This proved, he thought, that when there was a want found they got the men to fill it. There had been a high class of men all along as licentiates, and he had great pleasure in coupling the toast with the name of Dr. Reid, one of the most respected of them. (Applause.)

Dr. REID having briefly returned thanks,

Dr. HALDANE proposed "The Chairman," and referred to the very genial manner in which he had performed his duties.

The CHAIRMAN returned his most sincere thanks for the kind manner in which Dr. Haldane had proposed his health, and for the equally kind manner in which the company had received it. (Applause.) With such a company it would not be difficult for any one to keep up the hilarity of the meeting, and he had very great pleasure in occupying the chair on the present occasion. (Applause.)

Mr. IMLACH then proposed "The Health of the Croupier," a toast which he was sure they would respond to very cordially.

The CROUPIER returned thanks for the kind way in which the toast of his health had been proposed.

The proceedings, which were throughout of a very agreeable character, being interspersed with some excellent songs, then terminated.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON.

ORDINARY MEETING, FEBRUARY 14TH, 1881.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President, in the Chair.

THE minutes of the last meeting having been read and confirmed, Mr. W. Hern read a paper on "Fractures of the Maxillæ," for which we cannot find space in our present issue. In the discussion which followed the President, Messrs. M. Davis, L.D.S., Albert, W. A. Turner, Truman, M.R.C.S., W. Matthews, and C. Robbins, L.D.S., took part.

A cordial vote of thanks to Mr. Hern concluded the proceedings.

Miscellaneous.

BALKWILL'S MECHANICAL DENTISTRY.*

HOWEVER ardently we may attach ourselves to any one branch of our profession, our information will be decidedly incomplete if we neglect any of the less interesting branches, and we have occasionally observed that Dental Mechanics is just one of those sections that many profess either to despise or treat with marked indifference.

Many years ago the writer of this review had a conversation with one of the most prosperous and skilful members of our profession, and he was struck by the seeming indifference with which the construction of artificial teeth was treated, and even when certain imperfections in a particular material were pointed out, his only reply was, "I have never heard *my mechanics* complain." Such indifference is not only unbecoming, but it is unjust, and I trust that at the present day no such mawkish sensibility is encouraged. Dental mechanics constitute a branch of the Dental surgeon's duties, and although it is hardly necessary for the fully-employed operator to sit down to the work-bench, he should be

* 'Mechanical Dentistry in Gold and Vulcanite; arranged with regard to the Difficulties of the Pupil, Mechanical Assistant, and Young Practitioner.' By F. H. Balkwill, L.D.S. Eng., M.O.S. London: J. & A. Churchill, New Burlington Street.

capable of doing so, and at some period of his life the practice of mechanics should have constituted a part of his education. It is all very well for Mr. W. A. N. Cattlin to give it as his opinion that Dental surgery and Dental mechanics should be practised separately, but if we are what we profess to be we should be able and willing to attend to both departments. The experiment has been frequently tried to separate them, and it has signally failed. The Dental surgeon should be a Dental mechanic, and *vice versâ*.

Mr. Balkwill's book is a very comprehensive one, and, independent of over fifty pages of introduction, intended to contrast the mechanical conditions and functions of some of the lower animals with the teeth of man, it goes into every branch of gold, vulcanite, and mineral work. As most of the chapters have appeared in the 'British Journal of Dental Science,' and attracted considerable attention at the time, there is no occasion to make any extracts. Mr. Balkwill writes like a thoroughly practical man; he may even be said to do more, for his directions are so lucid that his work may be cited as a pattern to all those desirous of imparting methods of practice. It is at all times difficult to describe mechanical constructions, but aided by the plates which freely illustrate the text, the author's ideas can be very clearly understood.

No better chapter can be cited in confirmation of the author's knowledge of his subject than that on "Pivoting Teeth;" and his remarks "On the Arrangement of Artificial Teeth with a regard to Personal Beauty" should be read by every one having personally to attend to this department, whether his occupation preclude him from constructing the work himself or not.

Mr. Balkwill in his preface says, "The method of packing vulcanised rubber directly on the model was fresh." Packing vulcanite pieces directly on the model is not so "fresh" as Mr. Balkwill would lead us to believe, for if he looks into the 'Transactions' of the College of Dentists he will find that a paper was read as early as February 5th, 1861, "On Hardened India Rubber in the Manufacture of Artificial Teeth," and a method was there not only suggested, but several pieces of work were exhibited, showing that sets or small pieces can be made in the soft unbaked rubber, doing away entirely with a model piece, and fitting them to the mouth before being vulcanised.—PHOSPHOR.

1. AN ADDRESS by W. A. N. CATTLIN, F.R.C.S., *on the imperfections of the Dentists Act, with suggestions as to the alterations required to protect the interests of qualified surgeons.*
2. REPORT of the Committee of Council of the British Medical Association on Medical Education, January, 1881.

THE two pamphlets referred to under the above title were published about the same time, and as they both bear on the interests of the Dental profession, they may conveniently and advantageously be considered together, as one certainly throws light on the claims of the other. The extraordinary claim set up by Mr. Cattlin for that illumination and power which do *not* arise from special culture, as necessarily and potentially possessed by the ordinary members of the Royal College of Surgeons, appears to receive a decisive check from the latter publication, the 'Report.' This appears to *demonstrate* that there must remain a good deal yet to acquire before the *public* can be the gainers from the services of the young men so generally taught and examined in that surgery which has nothing to do with the practice of Dentistry. *Lucus a non lucendo* should have been the motto of the "ADDRESS." It surely must be vastly more important to the public that there should be good Dentists than that the fancied and *sentimental* interests of "qualified surgeons" should be protected.

So far as appears from Mr. Cattlin, the dispute is over the word surgeon. Referring to its etymology, the qualified Dentists seems to have pre-eminent claim to it, not that for a moment he admits the taint of mere "finger craft," because he knows (and all must know) that the hand is in his case the instrument of the educated brain, and he has no belief, like Mr. Cattlin, in *intuitive* power of this sort.

But apart from the true application of the word, what is the worth of it to the educated Dentist, I mean the Dentist who, after the legal curriculum has undergone examination and received his diploma of qualification to practise? Very little. It is presumably because Mr. Cattlin and the other members of his "Association" practise as *Dentists* that they are consulted as such, and they are thought of, and spoken of as Dentists in the language of every-day life. But to show how little the true Dentist envies the general practitioner or *pure* surgeon, it may be asked who ever heard of one wishing, much less attempting, to pass the boundary line between the two callings, to leave the pleasant pasture of intelligent intercourse with for the most part cultivated people (for they are the Dentist's general patients) to poke the nose into all sorts of disagreeable smells and messes pertinent to apothecary

caryism and physicking? After many years of observation and abundant opportunity of knowing, I can conscientiously say I never heard of *one*. But how reverse is the case we all know. "How often the Tories have broken into the Whigs' larder."

And this brings us to the other part of our subject, the claim of intuitive knowledge for the practice of Dental surgery by the ordinary surgeon.

The very surprising REPORT referred to at the commencement of this paper gives us a good idea of the range of acquirement possessed by the young men to whom Mr. Cattlin's "Association" proposes to entrust the treatment of diseases of the teeth. In the introductory statement of this report, to which alone it will be necessary to refer, it is mentioned that the late Dr. Parkes made a statement at a meeting of the General Medical Council to this effect:—"That the Medical Corporations are admitting a number of men into the profession who cannot practise their calling with safety to their patients;" adding, "I must say that in every examination we have had in the Indian service and the army during the years I have been an examiner, and during that time nearly 800 candidates had come before the examining board, there have presented themselves on *every* examination a number of men so imperfectly prepared in the *practical* part of their profession that we could not admit them into the ranks of the service. Every one of these gentlemen brought forward the double qualification." Dr. Sharpey confirmed this statement as to "the extreme insufficiency in point of *practical* skill" of some of the qualified men presenting themselves for examination for the Army Medical Service. This statement was made in the year 1864.

Professor Longmore, writing in November, 1879, on this subject, observes:—"We see at Netley how little qualified in professional matters some of the young men are at starting who have passed the examinations for their licences to practise, in many instances with much credit. Out of a batch of twelve men now at Netley, all above the average, not one could make a quantitative analysis of the urine, and only a few had a practical knowledge how to make a qualitative analysis. It is only in a few exceptional instances that I find a young surgeon coming to Netley acquainted with the manipulation of the ophthalmoscope, or knowing how to determine the refractive quality of an eye. As a *general rule*, it is absolutely necessary prescriptions should be supervised, and so on in numerous practical matters." It is argued that the men who enter at Netley are hardly up to

the average standard of practitioners. This is an error, but if true these gentlemen have all received diplomas and are legally qualified practitioners. *Inter alia*, the statement goes on to say "that neither the curriculum nor the practical knowledge possessed by students has improved for many years past is the unquestionable conclusion arrived at from the personal experience of a large number of men engaged in the work of private practice, men familiar with the wants of those who, in their rough experience of life, know where their own education has been defective." Such is history, and

"It is a good and soothfast saw,
Half-roasted never will be raw.
No dough is dried once more to meal,
Nor crock new shapen by the wheel."

Now these statements are the wounds of friends, and not of enemies, and they suggest *more* than the converse of Mr. Cattlin's proposal (that the way should be made easy for Dentists to acquire the diploma of member), namely, that it should be obligatory on *members* to take the Dental qualification if they intend to practise as Dentists, for the former qualification implies no Dental training or acquirement, and, *testè* the witnesses cited, not always a decent get up in general matters. Mr. Cattlin himself says: "The omission of Dental Surgery in the examination (of candidates for the membership) seems, at least to my prejudiced mind, a great disadvantage to the public." But who are to be the examiners? Quis custodiet ipsos custodes, upon Mr. Cattlin's principle? To sum up the whole, good Dentistry is a requirement of the days in which we live, and the ability to render such is a direct product of special study. Narrow as is the area (to the outside world) for the phenomena of disease and remedy, they who are best versed in it know that it has taxed their best powers. In no taunting spirit, then, we may ask the "Association of Surgeons practising Dental Surgery" to reconsider their principles by the light afforded by the "Report of the Committee of Council of the British Medical Association."—"AUDI ALTERAM PARTEM."

APPOINTMENTS.

MR. LEONARD MATHESON, L.D.S. Eng., of Oxford Road, Manchester, has been appointed Honorary Dental Surgeon to the Manchester Certified Industrial Schools.

MR. H. LLOYD FAREBROTHER, L.D.S. Eng., of New Street, Salisbury, has been appointed Dental Surgeon to the Salisbury Infirmary and Dispensary.

MR. W. G. GORDON TOURS, L.D.S.I., of Brixton Road,

S.W., has been appointed Dental Surgeon to Monsignor Petre's College, at Woburn Park, Surrey.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

GRATITUDE ?

To the Editor of the 'British Journal of Dental Science.'

SIR,—The recent decision of the General Medical Council has, without doubt, rendered the Dental profession a great blow, shattering the hopes of not a few of its members and placing them in an extremely awkward and humiliating position. For, not only are they compelled to abide by the decision of the Council (based on lawyers' dicta!) but must perforce thank its members for taking such a fatherly interest in the welfare of the profession! But it is our original Dental legislators who will feel the full force of the blow, for have they not, figuratively speaking, placed the head of the Dental profession in the lion's mouth? and can they reasonably complain if it gets bitten?

But, apart from this, it is very evident that all the wrangling and heartburning anent the Dental registration, is due only to a great blunder in the wording of Section C. of Clause 6 of the Schedule to the Act. Why, I ask, was it necessary to include chemists, barbers, &c., in the category of Dentists? Is the profession of a Dentist so unimportant—so easy of acquirement—that it may be legally (not to say conscientiously) followed by almost any tradesman who, up to the passing of the Act, may have attempted to extract an occasional tooth?

Again, I ask, is it necessary, or has it ever been necessary, for chemists, barbers, &c., to extract teeth or perform any other Dental operation? Are there not sufficient Dentists, and will there not always be sufficient men specially educated to practise the important art of Dentistry?

If a chemist who, to earn an extra shilling or two, attempts the operation of tooth extraction is entitled to be placed on the Dentists' Register, side by side with properly qualified Dental practitioners, one might be excused for thinking that a Dentist, who may have at any time mixed up and sold a dentifrice or lotion, should be, with an equal amount of right, entitled to be registered as a chemist.

In my opinion, it was a gross injury to the Dental profession, to the public, and to the whole surgical profession, to have ever inserted a clause in the Dental Act, whereby members of totally foreign professions or trades, should be enabled to register themselves as Dentists and style themselves (as I can, in not a few instances, testify) "Dental Surgeons, Certified and Registered by Act of Parliament." Of course, sir, my remarks do not in any way question the right of a properly qualified surgeon or medical man, who, if he so wills, may practise any branch or *spécialité* connected with surgery or medicine, but I maintain that if legislation was needed for the welfare of Dentistry (and I question whether it ever was) only those who were engaged in the practice of Dentistry—and Dentists only *pur et simple* should have been registered as such. Apologising, sir, for the length of this letter, the subject of which, perhaps, has been already fully exhausted in the pages of your valuable journal, and hoping you will find space to insert it, I enclose card, and beg to remain,

Yours, &c.,

"DIOMEDE."

ANSWERS TO CORRESPONDENTS.

"L.S.D."—Your letter should have been addressed to the journal in which the original communication appeared.

"ENQUIRER."—The Act expressly directs that "a person shall not be registered under this Act unless he produces or transmits to the Registrar BEFORE THE FIRST DAY OF AUGUST, ONE THOUSAND EIGHT HUNDRED AND SEVENTY-NINE, information of his name and address, and a declaration signed by him in the form of the Schedule to this Act," &c. This answer will apply to the case of "J. H." (Penzance), and several others.

"G. H."—Our advice would depend partly upon circumstances, including the *age* of the youth; but probably the best plan would be to article him as a pupil to a qualified Dental surgeon in good practice. Three years' pupilage and two years' hospital practice are required, or not less than four years in all of study for the profession.

Communications have been received from Messrs. Jas. Stocken (London), Bowman Macleod (Edinburgh), G. C. McAdam (Hereford), "Diomede," "Enquirer," "Audi Alteram Partem," "L.S.D.," "G. H.," "Phosphor," Rees Price (London), H. Thorn (London), Thos Gaddes (London), Jas. Hardie (Alloa), &c.

BOOKS AND PAPERS RECEIVED.

'Missouri Dental Journal.' 'Ohio State Journal of Dental Science.' 'Specialist.' 'Pharmaceutical Journal.' 'British Medical Journal.' 'Lancet.' 'Medical Times and Gazette.' 'L'Odontologia.' 'Therapeutic Gazette.' 'Petermann's Dental Almanack' for 1881. 'Dental Proceedings of the Medical Council.' &c.

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FRACTURES OF THE LOWER MAXILLA AND THEIR TREATMENT.

A paper read before the Students' Society of the Dental Hospital of London, February 14th, 1881.

By W. HERN, Esq.

MR. PRESIDENT AND GENTLEMEN,—The subject which I have chosen for this evening's paper may perhaps appear to some of you to be beyond the limits of our specialty, and rather encroaching on the domains of surgery; but I think that a little reflection will convince all that it is most important that we should not be incompetent to treat, or at least to assist in treating, injuries of bones which are, under ordinary circumstances, our special province. Indeed, the successful treatment of fractures of the jaws has of late come to rest in great part on the skill of the Dental surgeon, who is often called upon to make, and adjust within the mouth, dental splints; thus any of us may, and many probably will, hereafter be called upon to treat these cases either alone or in conjunction with a surgeon. And unless we have the *modus operandi* laid up in memory, either as the result of study, or, still better, developed from past observation and experience, we shall be reduced to act as the surgeon's assistant instead of as his coadjutor and adviser, and shall cut a poor figure in the eyes of the patient.

I have here, kindly lent me by Mr. Truman, a specimen of a badly united fracture of the lower jaw which occurred in a young, muscular subject, and which must have been attended with great inconvenience both as regards speech and mastication. Here are also two models of fractures of the lower jaw which, by the kindness of Mr. Hutchinson, I have been able to select from among the specimens in the museum.

Seeing then that such serious consequences may follow, it

behoves us, I think, specially to study these injuries, particularly with regard to their successful treatment.

Although fractures of the lower jaw are not very common in civil practice, it is nevertheless the most frequently fractured bone of the face, perhaps on account of its mobility, prominent position, and thin covering of soft structures to break the force of blows received by it; on the other hand, its peculiar semicircular or semielliptical shape, is admirably adapted to endure great violence without fracturing.

Fracture is usually the result of *direct* violence applied to it. The kick of a horse or a blow received in pugilistic warfare are two of the commonest causes. Considering the strength and size of the bone, one would think it quite impossible for fracture to occur as the result of muscular action alone, yet a case is recorded by Mr. Heath, in which fracture occurred as the result of a fit of coughing in an old man. A complete fracture of the bone has been caused by the unskilful use of that interesting instrument, formerly so greatly prized and extensively used by the surgeon and charlatan alike for the radical cure of toothache, known as the key, although most frequently fracture of the alveolar process resulted from its use. Fracture of the lower maxilla may, however, take place, though rarely, as an unavoidable accident in a Dental operation, and not the result of mal-praxis, even where the key is not had recourse to.

Falls from a height on the jaw or face, gunshot injuries, or the passage of a very heavy body, as a cart-wheel, over the face, produce some of the most serious and complicated forms of this injury. In gunshot fracture it is not necessary that the projectile shall strike the bone, for the concussion produced by the discharge of a firearm into the mouth may cause fracture of the lower maxilla, even though the missile does not actually hit the bone.

Fracture of the bone may be either simple or compound, also single, multiple or comminuted. By far the great majority of fractures of the *body of the bone* are *compound towards the mouth*, but the integuments externally are seldom broken to the depth of the fracture, and although the saliva and air of the cavity of the mouth communicate with the fracture through the lacerated gum, these injuries are said almost always to unite like simple fractures, viz. by a process analogous to that of "union by first intention" of soft structures. In fracture of the ramus it is uncommon, and in those of the coronoid process or condyles it is still more rare for it to be compound towards the oral cavity.

Comminuted fractures are the result of extreme violence, such as gunshot wounds, or the crushing of heavy bodies.

Seat and position of fracture.—The *body* of the bone is most frequently the seat of the injury. Forty out of forty-three cases reported by Hamilton were of the body. The *ramus*, on account of its position and coverings, is not so common a seat, except from gunshot wounds; the *coronoid* process may be fractured, and the *condyle* has often been broken off on one or both sides of the jaw in cases of severe injury.

When the fracture occurs in the body of the bone, its most frequent position is in the neighbourhood of the canine tooth. Mr. Erichsen has found that the most common seat is “between the central and lateral incisors, or between the latter teeth and the canines.” Others, however, consider the neighbourhood of the mental foramen the most frequent seat of fracture, yet it may occur at the symphysis or any point on the body of the jaw. In twenty examples of fractures through the body of the bone collected by Hamilton, not including fracture of the symphysis, the line of fracture was fourteen times at, or near, the mental foramen, twice between the first and second incisors, three times behind the last molar, and once between the last two molars.

The direction of the fracture is important with regard to the reduction and subsequent treatment. When it occurs at the symphysis it is usually vertical; when in the body elsewhere it is commonly oblique, and at the expense of the outer table of the anterior fragment and of the inner plate of the posterior one; but sometimes it is just the reverse.

The position of the fractured ends and the amount of displacement will depend on the seat of the fracture, whether it is simple or comminuted, and on the time which has elapsed since the accident. The inferior maxilla is a very freely movable bone, to which many important muscles are attached, which normally antagonise each other; but as soon as the continuity of the arch is destroyed by fracture, the antagonism of opposing sides is nullified, the muscles then act independently of each other, and draw the portions of fractured bone to which they are attached towards their fixed points, causing antero-posterior, lateral, vertical, or oblique displacement, and consequently overlapping or separation of the fractured ends. This displacement is often a very troublesome complication in the treatment.

The *symptoms* are generally easily recognised. They consist of *pain* at the seat of fracture; *deformity* and *unnatural mobility* of the part; often an increased secretion of saliva; and lastly, *crepitus*, produced by the grating together of the fractured ends on gentle manipulation of the jaw.

In the simplest fractures the chief symptoms are subjec-

tive; the patient feels pain, and perceives slight crepitus on occlusion of the jaws; yet there is generally some objective symptom, such as irregularity of the teeth, patent to the surgeon.

Patients often endeavour to support the chin and steady the fragments with their hands in a characteristic manner, and they may have great difficulty or inability in articulating or swallowing.

When any doubt exists as to diagnosis in the mind of the surgeon, he should grasp the jaw on each side, with the forefingers introduced into the mouth and resting on the teeth, then by careful and gentle manipulation he can establish the diagnosis by the movement and crepitus produced.

If the fracture be single and on one side of the median line, the smaller (or posterior) fragment is liable to an outward and forward displacement overlapping the larger fragment, due to the action of the temporal and masseter muscles.

If the oblique direction of the line of fracture be reversed, viz. at the expense of the outer surface of the posterior fragment, and of the inner plate of the anterior one, the displacement which occurs is worthy of notice. In a case related by Dr. Kinloch ('Am. Journ. Dent. Sc.,' 1879), the smaller posterior fragment projected slightly inwards and upwards towards the cavity of the mouth, and the larger one overlapped the smaller, having gone upwards and backwards, so that its sharp point could be felt under the skin.

Sometimes the fractures are *double*, occupying symmetrical positions in the bone, or more commonly, one near the symphysis, and the other near the angle; they may, however, occur anywhere. The displacement and deformity which occurs are necessarily greater than in single fractures. The depressors of the lower jaw, viz. the geniohyoid, mylohyoid, anterior belly of the digastric, and geniohyoglossi muscles, draw downwards and backwards the central loose piece towards the hyoid bone, whereas the lateral portions are drawn forwards and outwards by the combined action of the temporal and masseter muscles, as before described.

In multiple and comminuted fractures of the body of the bone no rules can be given concerning the displacement which may result, except that fragments to which individual muscles are attached will be approximated towards their fixed points. Where the bone is broken on each side and the obliquity of the line of fracture is the *same* on the two sides, viz. at the expense of the outer plates of each extremity of the central fragment, reduction and approximation of the ends is not difficult; but if the obliquity of the line of fracture is different on the two sides greater difficulty

will be experienced, first, in effecting a reduction, and secondly, in maintaining the fractured ends in apposition. Mr. Heath records a case of this sort which occurred to the great French surgeon Malgaigne, in which the fracture could not be reduced at all during life, and even after death the central fragment had to be forcibly drawn downwards and forwards, carrying it first below and then in front of the other in order to accomplish reduction.

Fracture of the neck of one of the condyles may happen, or it may be a bilateral injury. In this accident the symptoms are not so obvious as in those which occur in the body of the bone. The subjective symptoms are pain and crepitus on movement, which is performed with difficulty; if no crepitus is felt the injury may be mistaken for a dislocation, but the displacement of the chin *towards* the affected side, and not *away* from it as in dislocation, will strongly contra-indicate the latter.

The cause in all recorded cases has been a fall from a height on to the face. A good deal of displacement of the loose condyle is produced by the unbalanced action of the external pterygoid muscle, which draws it forwards and inwards, whereas the body of the jaw is drawn more or less upwards. Great difficulty in reduction is sometimes experienced in these fractures if complete displacement has taken place; it can only be accomplished by passing the finger far back in the mouth, pressing the loose condyle outwards and slightly backwards, whilst the body of the jaw is brought down to its normal relation with the other hand, where it should be immediately fixed.

Fracture of the coronoid process is a very rare accident, and is generally the result of great violence; gunshot injuries are the most common cause. The symptoms will be pain, increased by approximating the jaws, and hence using the temporal muscle, which causes an upward and backward displacement of the small fragment; the displacement, however, would not be much unless the whole of the insertion of the temporal muscle is broken away. These fractures do not usually unite by bone, probably on account of the difficulty in approximating the broken ends.

Fracture of the ramus is rather more common than that last described; it is usually produced by some crushing force or such injuries as produce fracture of the coronoid processes. The symptoms are similar to those of fracture of the body; the crepitus and irregularity can be felt by passing the finger far back in the mouth near the anterior pillar of the fauces. The displacement which occurs is not very great, since the masseter outside is pretty evenly antagonised by

the internal pterygoid on the inner side of the ramus. The temporal muscle, however, may produce a forward and slightly upward displacement of the posterior fragment.

The *treatment* of fractures of the lower jaw will naturally vary with the gravity of the injury, nevertheless, in *all* it consists in maintaining the separated parts in apposition by a suitable apparatus until the union of the fractured ends, by a deposit of new bone, is completed; the time over which this process extends will vary according to the age and constitutional condition of the patient, and the nature and extent of the injury; roughly about five or six weeks. During a part of this time, at least, the patient should be forbidden the use of solid foods and much talking, which necessitate movement, and thus delay union; abundant fluid nourishment should be given, such as milk, beef tea, soups, &c.

Loose teeth out of the line of fracture should not be removed; any teeth also that have been dislocated by the accident should be replaced in their *right* sockets, taking care they are perfectly clean and free from foreign matter by rinsing in lukewarm water or gently brushing them. Great care must also be exercised when the fracture is compound towards the mouth, that no loose or free tooth falls down between the fractured ends; this has been the cause of great delay in union of the bone. Perfect cleanliness must also be enjoined and enforced on the part of the patient; a deodorising mouth wash of Pot. Permanganatis may be given to the patient for use occasionally.

The apparatus chosen to hold the fractured parts together may be one of three kinds. Those applied externally, those within the mouth, or the two combined. The simplest method of external application consists in fixing the parts by the ordinary four-tailed bandage, made by taking a piece of bandage a yard and a half long and about four inches wide; this should have a slit about four inches long cut in the centre of it, parallel to, and an inch from, the edge. The ends should now be split to within two inches of the central slit. Combined with this bandage it is customary to make an external splint composed of sole leather, printer's mill board, or gutta percha. The latter is preferable owing to its easy adjustment; it should be cut two inches and a half wide and long enough to reach to the angles of the jaw on each side when passing in front of the chin; this also is divided at each end, as seen in the splint shown.

The steps in the application of the splint are the following: temporarily fix the teeth and fractured ends in as near as

possible their normal positions by ligatures or by the hands of an assistant, soften the gutta percha in warm water, and mould it to the form of the chin, which should rest in the centre, whilst the sides are folded around and beneath the bone. When set the splint is removed, trimmed, and punched with holes to allow of evaporation, a covering of wash-leather or padding of cotton wool is then applied to the chin and the splint replaced; lastly, the four-tailed bandage is applied over the splint.

If the jaws and teeth shut too closely to allow food to be taken between them, it becomes necessary to put thin wedges of cork, as used by Sir W. Ferguson, or of gutta percha between the molar teeth on each side. The fragments, however, keep a better position without these wedges, therefore they should not be used unless absolutely required.

Mr. Hamilton has invented a special form of apparatus to take the place of the four-tailed bandage, which latter, he says, "has a tendency to carry the anterior fragment backwards, especially when there is a double fracture." He uses a firm piece of leather as a maxillary band, and attaches the occipital stay to it above the ears. The advantage of this arrangement is, that it lifts the front fragment vertically, while there is no tendency for the bandage to fall forwards and downwards on the forehead. Each of the modes of treatment already mentioned have the common disadvantage of keeping the jaws fixed by the external bandage. This is not only very tedious to the patient, but troublesome also to the operator, for owing to the powerful strain of the depressor muscles of the lower maxilla, these bandages are constantly stretched and getting loose; having to be readjusted. Moreover, the pressure which is necessary often causes troublesome swelling and inflammation about the chin, which may lead to suppuration and abscess; also teeth loosened by the injury are left unsupported in the mouth, and the movements of the cheeks and lips are painfully restricted. A great many mechanical appliances have been invented to supplement the use of bandages or entirely to supplant their use.

The employment of ligatures of gold or silver wire on the teeth from the days of Hippocrates (who first used them) up to the present time, has been unsatisfactory as a permanent application, being not only inadequate for the production of perfect coaptation and prevention of mobility of the fractured fragments, but also to be deprecated on account of the irritation of the gums and loosening of the teeth to which the ligatures are attached. Should such treatment be necessary, sound teeth *must* be chosen for the ligatures, and those not

immediately adjoining the fracture, or the teeth may be drawn out of position and dislocated.

Suture of the jaw itself was recommended by Mr. H. Thomas—the sutures he applies are of silver wire. Having drilled holes through the bone about one eighth to one half inch from the line of fracture in each fragment, he passes the wire through and coils each end of the wire into a spiral by means of a special tubular instrument, both spirals being without the arch, viz. on the buccal surface of the jaw. Another method of his is to pass a loop of wire around a firm tooth behind, and having drilled a hole in front of the fracture to pass the ends of the wire through it, the outer wire from before backwards, and the inner one the reverse; the ends of the wire are then coiled as before, one coil being situated within, and the other without the arch of the teeth.

A somewhat similar plan, inasmuch as it involves the necessity of drilling through the body of the jaw, is recommended by Mr. Wheelhouse, of Leeds. In this two silver pins are first made, with flat, circular, and perforated heads, each about an inch and a quarter in length; two holes are then bored through the bone between the roots of the teeth on each side of the fracture, and the silver pins passed through from behind forwards, the points in front being bent in opposite directions. The perforated heads are next threaded with a stout silk ligature, which is brought forward over the teeth to retain them in good position, the ends of the silk are then twisted into a figure-of-eight suture around the reversed ends of the pins, to hold the fragments together.

Each of these modes of treatment, it seems to me, involve a somewhat more formidable operation than is necessary, unless under exceptional circumstances, such as comminution of the bone accompanied by obstinate displacement of the fragments, there being few or no firm teeth in the jaw; moreover, the sutures produce an amount of irritation and laceration of the soft structures in the mouth, which can often be avoided by choosing, where possible, one of the interdental splints, to be presently described.

The various splints formerly used, from the first, recommended by Paré, to the clamp invented by Mütter, have all been in time discarded, as failing to effect the desired object. The splints which *can* be relied on in the treatment of fractured jaws have nearly all been invented by surgeons or Dentists of this century, and more particularly of the latter half of it.

The least elaborate and most easily constructed apparatus within the mouth, consist of wedges of gutta percha introduced warm so as to become moulded to the gums and teeth.

These are advocated by Hamilton as supports and lateral splints for the fracture.

In order to apply some of the most reliable interdental splints, it is necessary to procure a model of the lower arch, sometimes of the upper as well. There will often be some considerable difficulty experienced in taking impressions for these, owing to the swelling and hyperæsthesia of the parts, and the spasm of the muscles; consequent on the injury. Some practitioners recommend taking the impression of the mouth immediately after the injury, if the condition of the patient will permit. Others advise waiting until the muscular spasm passes off, and some of the swelling disappears. Whether immediately, or some time after the accident, the model of the jaw and teeth should be taken in wax or soft Stent, according to Mr. Tomes, "without attempting to bring the fragments into proper relation;" this is cast in plaster, making a shallow model of it. By sawing out the piece of plaster between the extremities of the fragments, these can be brought together, and should be fixed in their normal relation by embedding all in a second mixing of plaster, thus producing a model of the perfect jaw. A model of the upper jaw and teeth will greatly assist in getting the normal height and arch of the lower teeth, by studying their articulations.

It will often be found advantageous, by saving space, to take the impression of the teeth in two parts, by means of half trays, or an impression of each fragment separately. The casts from these impressions should be united by plaster in their proper relations, in a similar manner to that just described. Having procured, by these means, a *corrected* model of the jaw, we must now decide on the kind of interdental splint most suitable to the particular case.

Mütter's clamp, modified by Mr. Tomes, is sometimes used in fracture of the body of the jaw; it consists of a silver cap, made by swaging to fit accurately to the teeth for some distance on each side of the fracture. Just before applying the splint it is lined with warm gutta percha, and when pressed into position the latter fills up the interstices of the teeth and fixes the plate; it is sometimes applied without the gutta percha. Without having had experience in the use of this splint, I fear that it would be liable to shift its position, unless further support be added to it.

Another splint, devised by Mr. Howard Hayward, and which has been used successfully by him in fractures both of recent and old date, consists of a metal plate made to cap the teeth on each side of the fracture, as well as the gum, to a slight distance outside and inside the arch. To the upper

surface of this plate are soldered two pieces of strong curved wire, these turn round the angles of the mouth and are attached to a simple gutta-percha splint moulded externally to the jaw, and retained in position by an ordinary four-tailed bandage. Holes are drilled through the plate opposite its point of fracture to permit the exit of any discharge.

An objection to this splint is, I think, the necessity of keeping the jaws closed during the treatment of the injury. Although it is a great improvement on the simple gutta-percha splint and four-tailed bandage.

Mr. Bean, of America, uses an interdental splint, which either caps the lower teeth, or merely has indentations on its inferior surface for the teeth of the lower jaw, and on the superior surface corresponding marks for the upper teeth. This splint is inserted into the mouth, and having carefully adjusted the teeth to their proper positions, the jaws are closed and held firmly in position by means of a mental compress and an occipito-frontal bandage, thus preventing any displacement of the splint or motion of the jaws.

A combination of an external with an internal splint was invented by a German surgeon in 1799, a modification and improvement of which exists now in the elaborate combination of splints, known as Lonsdale's apparatus. This consists of an ivory cap for the incisor teeth, which moves vertically on a bar projecting downwards from the chin-piece, and fixed by a nut when in position; the chin-piece is of horse-shoe shape, which before application should be well padded with lint, or wool stretched in wash-leather; a tape or band is fastened to each heel of the chin-piece, which passes around the neck to prevent its slipping forward; attached to the side of the chin-piece are two lateral pads or cheek-pieces to obviate lateral movement of the fragments.

The weight and size of this splint are, in my opinion, as great an objection to it on the one hand as its complexity and limited adaptability are on the other, since it is applicable only to fractures between the incisor teeth.

The apparatus, as modified by Mr. Hill, appears to me far superior to that just considered, being more simple and of wider application. In this splint the lateral pads are removed, and a metal mould of the alveolar arch takes the place of the ivory cap, to the upper surface of which are attached two stout wires which arch over the lower lip, and converge outside ending in a vertical rod; the latter moves in a perpendicular tube fixed to the chin-piece in front. The approximation of the chin-piece to the mould is accomplished by means of a nut; thus displacement is obviated and the fragments are compelled to keep their right positions.

A series of four splints, which are deserving of our consideration, were invented by Mr. Gunning, of New York, and have been used by him in a great number of cases, producing very satisfactory results. He claims for them that they are neat and comfortable, can be kept clean, and can be applied to any case of fracture of the body of the jaws as well as of the condyles or coronoid processes, fulfilling all that is essential to hold any fractured jaw in place. Two of these splints are composed entirely, and a third chiefly, of vulcanite; they must, therefore, be constructed by the Dentist, whether used by himself or by a surgeon.

Mr. Moon, to whom I am indebted for many practical hints on my subject, has employed Gunning's splints in a number of cases with great success.

1. The first splint of the four, which allows the lower jaw to be free, and is adapted to the treatment of all cases which have teeth standing on each side of the fracture, except those with obstinate vertical displacement, is made solely of vulcanite. It should enclose *all* the teeth and part of the gum of the lower jaw, merely resting against the upper teeth when the jaws are closed, there being indentations on the upper surface to receive them. This splint is fixed in position on the lower teeth by means of pack-thread, by wire screws passing into or between the teeth, or by a pair of wings and a mental band. Holes are drilled through the top of the splint and around the sides, to serve the double purpose of seeing the teeth are in good position and of syringing the parts with warm water to keep them clean and inodorous. When the splint is to be secured in the mouth by screws *passing into the teeth*, female screws are to be vulcanised into it opposite those teeth to which it is to be fixed; it is then placed in the mouth, and a tube having been inserted to protect the female screws, the teeth are drilled with the engine to a depth of half a line to a line, when the screws can be put in, which fix it very firmly. The cavities made for the screws can be filled with gold after the fracture has united.

In those cases where the splint is to be fixed by screws passing *between the teeth*, the same plan is to be followed with the exception of drilling the teeth—that fixed by wings and mental band will be considered with another splint presently.

2. In cases complicated with obstinate vertical displacement, Mr. Gunning advocates the use of another splint, which not only encloses the teeth and gums of the lower jaw, but also those of the upper. By this arrangement he says, "the fragments of the lower jaw are secured not only rela-

tively to each other, but also to the upper jaw." Being adapted to the treatment of all fractures behind the teeth, whether of the body, the ramus, or its terminations; care will be required in taking the articulation for this splint. It should be fastened in the mouth on both sides of the upper as well as the lower arch, by screws passing into or between the teeth in the manner previously described. In fracture of the neck of the bone, the lower fragment can be kept firmly in contact with the upper in this manner, and in fracture of the angle or ramus this would aid, at least, in holding the parts in apposition; and as the lower jaw is fixed to the upper the extra support of the four-tailed bandage may with advantage be employed.

When this splint is applied, where there are upper and lower back teeth to fasten to, the mouth should be kept slightly open, and the vulcanite may be *cut away in front*, leaving the arch of the palate to support the lower part of the splint; this affords good space to speak and take food through. When, however, some front teeth are lost and the space thereby gained is sufficient to feed the patient through, the jaws need not be separated any more than is required for the size of the splint to be consistent with strength. Small openings should be made opposite some appropriate teeth to observe how the jaw stands or continues in position, also for cleansing purposes, as in the preceding one; it is advisable also to leave a channel whereby the parotid saliva may enter the mouth, or it may become a source of annoyance to the patient by overflowing at the angles of the lips. The splints shown illustrate most of these points.

3. Another splint, devised by Mr. Gunning for edentulous cases, resembles the last, but is fixed in the following manner:—Projecting from the angles of the mouth on each side are two wings of steel, held in position by being embedded in the vulcanite splint, the lower jaw is held up and secured in the splint by a mental band stretched across from one lower wing to the other, and the whole is held firmly to the upper jaw by means of bands passed down from a tightly fitting skull cap around the upper wing; there is also a neck strap to prevent forward displacement.

4. The last of Mr. Gunning's splints is of rather crude construction, and may be used for several cases consecutively. The splint is made of tin very similar to a metal tray; to its upper surface are soldered two long curved wings, which arch over the lower lip at the angles of the mouth and are turned backwards horizontally outside the cheeks. Having procured the corrected model of the fracture, warm gutta percha

is placed in the splint and pressed down on it; the whole is now cooled and the plaster cut away. The gutta percha should be again gently warmed when it is introduced into the mouth and slightly pressed down on the teeth. When the jaw can be held in place, and will bear but little pressure, plaster-of-Paris may be used as a lining for this splint instead of gutta percha; this will avoid the necessity of taking a model, and will hold the fragments in position in the splint for a considerable time. The wings are notched and perforated, and the splint is fixed on the teeth by a mental bandage tied on each side to them. A neck strap to prevent forward movement completes the apparatus.

An improvement on the latter splint is described by Dr. Kingsley. It is made of vulcanite, capping the lower teeth and gums on each side of the fracture; embedded in it are two wings of steel, which arch well over the lower lips at the angles of the mouth, turning backwards with a slight inclination upwards, outside the cheeks. The wings may be made of two old excavators tempered down by heat. A mental pad is fitted to the chin which protects the cheeks from the lateral grip of the bandage. Having placed the splint within the mouth and the pad on the chin, they are firmly fixed by a bandage passed from one wing underneath the chin pad to that of the opposite side. This splint is admirably adapted for fracture of the body of the lower jaw, whether it contains many or few teeth; it supports loose or long teeth, prevents displacement, and being attached to the lower maxilla by the wings and mental bandage, the movements of the jaw are not restricted, therefore speech is not greatly interfered with, and liquid food can be taken at pleasure. This, kindly made for me by Mr. Truman, represents the splint.

The advantages it possesses over some of those just considered, are its simplicity, lightness, and durability, being lighter and more simple than Lonsdale's apparatus, and more durable than the gutta-percha splint of Mr. Gunning on the same principle. In fractures occurring in the body of the bone, where there is not very great displacement of fragments, and where the teeth are neither numerous nor firm, this is a splint which can be relied on for good and satisfactory results. Its simplicity of construction and facility of adjustment commend it to our consideration and approval.

The next, and last appliance I wish to bring before your notice, is that known as Hammond's wire splint, of which I have prepared two specimens here; one to show its application in those cases where all, or nearly all the teeth are present, the other to show its adaptability in those rarer

cases of absence of front teeth, the result of the accident, or previously lost.

In order to produce perfect results with this splint, there should be firm teeth on each side of the fracture, or fractures. It can be easily and expeditiously made by bending to the model a piece of stout, round *iron* or *platinum* wire, in a horse-shoe shape, to enclose all the lower teeth in a *continuous loop*. Starting from the buccal surfaces of the teeth the wire is carried around the most posterior tooth of the arch, then along the lingual surfaces to the point whence it started, where the two ends are soldered together. The model which is thus fitted must be a corrected one, made by sawing through the model at the seat of fracture, resetting and embedding the pieces in fresh plaster as before described. If it be preferred, a metal cast can be procured and the wire struck up around the teeth with a bone mallet. The wire loop being made, it must next be fixed on the teeth; to do this there must be a little forbearance exercised by both patient and operator; by the former, inasmuch as the fixing may be a little painful, and by the latter because it is a little tedious, especially when the teeth are crowded and very close together. Patience on the part of the operator and a little endurance on that of the patient will soon overcome these difficulties.

The splint being placed over the teeth and just resting on the gum at their necks, short lengths of stout binding wire are passed between the teeth, over the outer wire and under the inner, returning over the inner wire and under the outer, when the two ends are twisted together with a pair of small pliers. The twisted ends are now cut off rather short and passed again between the neck of the teeth, to prevent laceration of the tongue and cheeks by the sharp point. If there happen to be some teeth standing alone, or spaces between two or more teeth which would render the ligatures as applied useless, the wire should be passed around these teeth and in the same relation to each side of the splint as before. I think this is demonstrated on each of the two specimens shown, better than can be verbally conveyed.

This splint is incomparably superior to any previously mentioned, for those cases where the fracture occurs in the body of the bone, there being *always* one, or several, firmly implanted teeth on each side of the fracture, for it not only occupies the minimum of space in the mouth, thereby interfering less with the functions of articulation and speech, but also possesses the advantage of allowing the operator to observe and correct any displacement which may occur during the treatment. Moreover, movement of the jaw

is permitted in a very unrestricted manner, and all discharges can be freely got rid of by syringing or washing: the mastication of soft foods, in some cases, may be permitted where this splint is used as early as a fortnight or three weeks after the accident.

In fractures of the rami or their terminations little advantage can be gained by inter-dental splints. Mr. Gunning, however, advocates the use of one of his splints in these cases. The vulcanite being cut away in front to feed through, a four-tailed bandage should be put on, and the parts kept absolutely at rest.

The time during which these several splints should be worn will depend greatly on the age and constitutional condition of the patient and the singleness or multiplicity of the fracture. As a general rule they should be worn for five or six weeks before attempting to do without them, in some cases it will be prudent to wear the splint for a longer period.

Before sitting down, gentlemen, I would express a wish that those who have had experience in these matters—and I know there are some—would give us the benefit of it, so that a few at least of the failings of my paper may be made up by a good discussion. I am sorry I have not been able to enter on the treatment of the complications of fracture, but I feel I have already trespassed too long on your time. In conclusion, gentlemen, I thank you heartily for favouring me with your kind attention.

TREATMENT OF APPROXIMAL SURFACES.

By H. C. LONGNECKER, Philadelphia, Pa.

(Read before the Pennsylvania State Dental Society.)

IN presenting this subject before the society, I would preface my remarks by saying that it is my conviction that the operations required upon the approximal surfaces are by far the most difficult, the most laborious, and, at times, the most discouraging of any we are called upon to perform. Not only are they difficult, but, as a rule, they exceed in number those required upon the buccal and masticating surfaces.

In the treatment of the latter class of cavities, while there may be differences of opinion as to the preparation and manner of introducing the gold, still, if thoroughness be observed, the result will be, as a rule, satisfactory. When, however, decay attacks the adjoining surfaces of the teeth,

there are a number of "systems," all of which have been and are still warmly and earnestly defended.

In the treatment of approximal surfaces operators may be divided into two general classes, namely, those who practise the method of making permanent separations, and those who restore the original form of the lost tissue. The first class may be subdivided into those who advocate the single and double V-forms of separation; those who separate widely and freely towards the palatal and slightly towards the buccal surfaces; and, lastly, those who cut through for the purpose of obtaining room, leaving the contiguous walls parallel to each other.

That form which allows the teeth to again come in contact at the necks is a dangerous one, for the simple reason that the cause of the original decay is not removed. Recurrence will, in a large number of cases, take place, and the operations thus made necessary are extremely difficult to perform thoroughly and satisfactorily. That form which allows them to touch towards their buccal and grinding surfaces, while it secures freedom at the necks of the teeth, if properly performed, has the objection of causing a sacrifice of tooth-structure, which hardly seems justifiable. In addition to this the teeth are kept in immediate contact, the exciting cause of decay is not removed, and unless conditions are favorable, caries will in due course of time ensue.

The last form spoken of, namely, cutting through from the grinding surface, leaving the walls flat and parallel to each other, has many objections; yet it is probably more extensively practised than any other method, for the reason that it facilitates operations. If it is done early in life the teeth will again come together, and if fillings have been inserted, that slow but potent force, capillary attraction, will ever and anon be at work, recurrence of decay will, in a large majority of cases, take place, the operator will be forced to sacrifice still more tooth-structure and refill, and, in the natural course of events, he will have a condition the same, or, if the teeth are frail and the tonicity of the system low, even worse than before. Again, the teeth treated in this manner are for a time almost useless for the purpose of mastication—the food wedges between them, and every act of mastication causes pain or distress. This will continue as long as the spaces remain, or until the gum becomes, so to speak, paralysed. Even when they do become measurably comfortable, there are few cases where the gum-tissue presents a perfectly healthy appearance. I would also add, that if the dentine be exposed by cutting away the enamel, the surfaces will, for a time, be quite sensitive to thermal changes.

If separations of themselves will prevent caries, why not practise one or the other of these methods before decay takes place, and thus supersede the possibility of it? If it is of any avail after the teeth are once affected, how much more would it be when the surfaces are still intact! Yet there are few who make separations of whatsoever kind to prevent disintegration upon the adjoining surfaces of the teeth. In other words, anticipation, to my knowledge, is not very extensively practised.

In speaking of the treatment of approximal surfaces, let us for the present confine ourselves to the molars and bicuspids, as these are the teeth that perform the service of mastication. It is these teeth more than any others which should be made to touch, not only for the support thus given and the comfort afforded in mastication, but for other reasons, which will be spoken of hereafter.

The first step in performing what is ordinarily known as a contour operation, is to press the teeth apart either by wooden wedges or cotton. Cotton is in many instances preferable on account of its producing less soreness, though it has the objection of not accomplishing the work so rapidly. Having gained the necessary amount of room, gutta-percha should be packed between the teeth and the whole space filled. This should remain three or four days, when the tenderness caused by the wedging process will have passed away. The gutta percha should then be removed, the rubber-dam applied, and the cavity or cavities prepared. In preparing the cavity it should, in frail teeth, be made to extend beneath the free margin of the gum; it should be opened well from the grinding surface, so that the palatal and buccal walls, when the operation is completed, shall be free; grooves should be cut in either wall, the edges carefully and smoothly prepared, and, lastly, a starting point should be made at the cervical wall, near either the buccal or palatal groove. A starting-point is preferable, because you can be more positive of a thoroughly moisture-tight joint, at this, the most vulnerable place in the whole operation. The starting-point should be partially filled by a hand-instrument with No. 8 or 16 foil, cut in narrow strips, and in length from a half to one inch. The remaining part of the operation can be performed with ease and facility by the electro-magnetic mallet. The foil, to secure the best results, should not exceed No. 32. Heavier foils may, however, under favorable circumstances, be used.

The gold having been thoroughly consolidated and the shape of the tooth perfectly restored, the finishing process can be accomplished readily by means of fine files, emery-

cloth, linen tape and pumice, used in the order named. The operation should be completed before removing the rubber-dam, so as to avoid as much as possible the wounding of gum-tissue.

If the adjoining surfaces are operated upon in this manner, the gold of one is made to touch the gold of the other, decay cannot take place here, the margins are free, the force of capillary attraction is overcome, comfort in mastication insured, and, in short, I know of no method that presents so many advantages for the ultimate salvation of the teeth.

In the anterior teeth it is not so necessary to have them touch towards their cutting-edges. A narrow space is, I think, preferable to the exposing of gold. To avoid showing gold the teeth should be separated by pressure, and the cavity or cavities prepared and filled from the palatal surface. If, however, it is necessary to expose the metal to restore lost tissue, the operation should be performed with the utmost care and finished exquisitely; leaving the teeth angular and square should be studiously avoided, the corners should be rounded, and the whole made to present a graceful appearance.

The operations here spoken of are extremely difficult, and it is not always that we can work up to our ideal; but it is better to make bungle after bungle, trying to do something than be propriety personified, doing nothing.

The labour, skill, expense, and time required for this method of operating will, I think, be admitted by all; but while these may be, and doubtless are, practical objections, they in no manner impair the correctness of the principle. These operations represent the ideal, the very poetry of Dentistry; they are useful; they are beautiful. Let us guard the beautiful with reverent care; the useful will take care of itself.—*Dental Cosmos*.

Hospital Reports and Case-Book.

TWO CASES OF REFLEX PAIN.

By JAMES HARDIE, Esq., Alloa.

THIS morning a man requested me to extract a right upper bicuspid, as he said he had severe nerveache in it. I

examined it, and found it to be quite sound. I then proceeded to examine the other teeth, and found that the lower wisdom on the same side was very much decayed. I tested it and found it was extremely sensitive, and I felt certain the pain was reflected from it. I told him so, but he was quite determined to have the bicuspid extracted, and it was with great difficulty that I managed to persuade him to allow me to take out the lower wisdom. He has not returned, therefore it would appear he has found ease.

A few months ago I had a severe paroxysm of pain between the two right bicuspid in the lower jaw. I was certain they were perfectly sound, and that the pain was reflex from the right upper canine, which had been several times filled, and was decayed under the margin of the gum. I extracted it for myself, and found ease at once.

With me cases of reflex pain are of frequent occurrence, and in the majority of cases I have great difficulty in persuading the patients to let me extract the right tooth, in fact I have known them refuse to have it done, and go away.

British Journal of Dental Science.

LONDON, APRIL 1, 1881.

“If it be true that ‘nothing succeeds like success,’ then assuredly the British Dental Association has a brilliant future before it.” So says the official organ of an Association which was founded just two years ago with the special object of watching over and furthering “the general interests of the profession, with special reference to the proper carrying out of the provisions and spirit of the Dentists Act of 1878,” an object which might have been expected to secure the adhesion of almost every member of the profession. The society adopted no less comprehensive a title than that of the British Dental Association. It was officered by men who belonged for the most part to the *élite* of the profession, and who entered upon their duties with all the prestige

attached to the successful labours of the Dental Reform Committee; yet this grandly-named Association can boast at the present time of but just over 400 members. If this is "success," what would have been accounted a failure?

Although, to use a homely proverb, one cannot expect the journal of the Association to "cry stinking fish," still statements like the above can deceive no one, and only serve to call more immediate attention to the fact that the Association has *not* received that support from the profession which the exceptionally favorable circumstances under which it was founded and the undoubted popularity of its declared object might have been expected to secure for it.

Into a discussion concerning the causes of this comparative failure we feel very unwilling to enter. We have felt it our duty on several occasions of late to criticise more or less unfavorably the conduct of the affairs of the Association; these criticisms have not been put forward in any carping or unfriendly spirit, but as honest and independent expressions of opinion. There has never been a time when unity in the profession was more necessary than at the present. We want a well-organised combination of the whole respectable portion of the profession to protect itself and the public against the dishonest practices of a disreputable minority. How far has the British Dental Association yet shown itself capable of supplying the much needed bond of union? Quality will not do duty for quantity in this matter; in order to command the confidence of the profession generally, such an organisation must be founded on a broad and liberal basis and must be thoroughly representative.

But as to the "brilliant future" which, after all, concerns us far more than the past. We have seen what was the primary object for which the Association was founded. What indications of its future policy does the executive now hold out? We turn again to the last number of their journal and we read that the British Dental Association is to provide a neutral ground for mutual good understanding, and

is on this account essential to the well-being of the entire profession. "But above all things the work of the Association lies in the direction of real scientific labour. That men should work is well, that they should freely communicate the results of their labours to others is still better. The Association, with its branches, affords the readiest means for the largest number of practitioners doing this in all parts of the country." So quacks may flourish, the provisions and spirit of the Dentists Act are at best secondary considerations, and the Association is to settle down into a field already well occupied and profitably cultivated by the Odontological and Odonto-Chirurgical Societies, besides several others of more recent formation.

This is all very well, but we hope that it is not to be taken as an authoritative statement of the future policy of the Association. We do not wish to appear impatient; it is most important that no step should be taken by the Representative Board without the utmost care and deliberation; but the profession is waiting anxiously for some decided expression of opinion respecting the future action of the Association, and there can be no doubt that the nature of this decision will greatly influence, either for good or evil, its popularity and consequently its progress. We do not despair of the "brilliant future" spoken of, but it will certainly not be reached by a policy of self-admiration and masterly inaction.

Literary Notices and Selections.

DEATHS FROM CHLOROFORM.

Two instances of death from chloroform have been recorded during the past week. One occurred at Swansea. The wife of a commercial traveller, aged nineteen, was undergoing an operation for a uterine tumour. Death occurred after the influence of the anæsthesia had been maintained for an hour and three quarters. It is very desirable that the details of the case should be published, since it is unusual for chloroform to be fatal so long after the commencement of its administration. The other case, which occurred at the Bradford Eye and Ear Hospital, was of a more ordinary character, inasmuch as death occurred just as the patient was getting under the full influence of the anæsthetic. The patient was a man, aged sixty, who was about to be operated on for cataract, and he had been run over and slightly injured about a fortnight before—a fact which was not known to the surgeons until after his death. Mr. Denby appears, from the account of the inquest, to have administered the chloroform on a towel, a small quantity of brandy having been previously given. Apparently a drachm of chloroform was first administered: the patient was still for two minutes and then struggled for two minutes more, and then again became quiet. Another drachm of chloroform was poured upon the towel, but part of it was spilt. After the second dose had been administered for about a minute and a half it was noticed that the face became pale. Mr. Denby asked Dr. Bell, who was holding the pulse, how the pulse was, and he said that it had suddenly ceased. The heart was found to have ceased beating, and all efforts to restore animation were fruitless. The circumstances of the case were thus of the usual character. The accident was ascribed to heart disease by the verdict of the coroner's jury, but the fact does not appear to have been established by post-mortem examination. With regard to these and all other deaths from chloroform, unavoidable under the circumstances as they doubtless are, the question arises, Were they altogether unavoidable? Would the patients have died had ether been used instead of chloroform. This is a question to which a positive answer cannot be given; but since it is certain that the proportion of deaths from ether is far fewer than from chloroform, it is

probable, in the same degree, that any given death from chloroform would not have occurred had ether been given instead. No surgeon who sanctions the administration of chloroform instead of ether can acquit himself of some measure of responsibility for the death of his patient, unless he can prove that the special circumstances of the case rendered it, for the patient's sake, desirable that the increased risk, if small, yet measurable, should be run, and no other consideration should be held to justify the employment of chloroform.—*Lancet*.

GELSEMINUM IN FACIAL NEURALGIA.

IN the interest of a very reliable drug, I must give an illustration of the effects of gelseminum. Premising that I employ the tincture as prepared by the Apothecaries' Company—and my usual dose is fifteen minims in a tablespoonful of water every half hour to every four hours until relief is obtained—as a rule, I find it produces no ill symptoms; but I have had, during the frequent use of it for the last five years, some exceptional cases where effects similar to those described by Dr. De Wolfe in the journal of the 5th of February followed. Notably, so far as my experience goes, men are more susceptible to its deleterious effects than women; and I call to mind one particular instance—a city man of good position, and a frequent guest at civic banquets, who, while praising my drops, for the certain relief they always gave him in his neuralgic seizure, yet added—"they always make me feel half drunk." My illustration of the prompt relief afforded by gelseminum is the case of a fair-skinned, auburn-haired granddaughter, only six and a half years old. I was called to her at two o'clock in the morning, and informed she had been suffering most intensely all night, and was then crying and moaning bitterly from acute neuralgia, which seemed to arise from a decayed primary molar tooth. Fifteen minims of the tincture of gelseminum were given, and within half-an-hour all pain had left her, and she was in a sound and refreshing sleep; and now, three months having elapsed, the child assures me she has not had the slightest recurrence of the pain. Such has been my experience in many other instances, although I freely admit it has failed with some. My suggestion to Dr. De Wolfe and others who may be induced to try the remedy, or have found the distressing symptoms follow as detailed by him, advise the patient

to lie down immediately after taking the drug, and maintain the recumbent position as long as he may be under its influence. I have taken it myself more than once, and never had Dr. De Wolfe's painful experience; but I was always in the recumbent position.—BENJAMIN CLARKE, F.R.C.S., &c.

I HAVE had a good deal of experience in the use of gelseminum, both in my own person and that of patients. I have found it a reliable and safe drug in suitable cases, such being cases of neuralgia of the dental nerves due to carious teeth. In my own personal case, I always have recourse to it, and with success, as soon as ever I feel a twinge in a decayed tooth; and I have given it to patients under similar circumstances, with like favorable results when taken soon enough. In cases of facial neuralgia, however, involving other parts of the face, as the forehead and the temples, I have not had good results from it, and have latterly always limited its employment to cases where the neuralgia was apparently due to the condition of the teeth.

I usually prescribe the tincture in doses of ten or fifteen minims, repeated every half hour or hour until the pain is relieved. I have never seen or experienced any deleterious effects, and, in my own case, have taken it at all times of the day and night, and in all positions.—W. DOUGLAS HEMMING, F.R.C.S. Ed., Bournemouth.—*Brit. Med. Journ.*

ANÆSTHESIA BY PROTOXIDE OF NITROGEN.

M. PAUL BERT's minute researches on the physiology of anæsthesia by protoxide of nitrogen, and also its therapeutic influence, are well known. Dr. Blanchard has recently summarised the results as follows:—1. Protoxide of nitrogen, administered under tension, and mixed with oxygen, produces, in a few seconds, profound anæsthesia. 2. In these conditions life may be maintained indefinitely, and is completely protected from asphyxia. 3. By increasing or diminishing the pressure, the progress of the anæsthesia may be regulated at will, and with mathematical precision. No accidents can occur such as are hazarded by making use of chloroform or ether. 4. So soon as the inhalation of protoxide of nitrogen is ended, the patient recovers consciousness in a few seconds, and experiences no subsequent discomfort. 5. Protoxide of nitrogen simply becomes dissolved in the blood-plasma; so soon as inhalation ceases, it is given off by the lungs. Its

use does not, therefore, give rise to any disturbance of nutrition, or to any chemical change in the organs. 6. The necessity for the operator and his assistant placing themselves in an atmosphere of compressed air cannot be denied. Compressed air is very efficacious in the treatment of catarrh of the mucous membrane, of the Eustachian tube, and of the respiratory organs generally. 7. In virtue of all these facts, protoxide of nitrogen seems to be very superior to chloroform or ether, as much on account of the profound anæsthesia which it induces, as for its perfect harmlessness. If a pressure of thirty millimètres of mercury is not exceeded, it is absolutely impossible that the patient should run any risk from the mere fact of anæsthesia. 8. In all cases in which chloroform or ether is employed, and wherever it may be possible to employ protoxide of nitrogen, this agent ought definitely to replace the two first-named anæsthetics.—*Brit. Med. Journ.*

THE INTERNATIONAL MEDICAL CONGRESS.

WE have from time to time placed before our readers, so far as our space has permitted, the arrangements that are being made for the conduct and management of the International Medical Congress to be held in London in August next, and we cannot doubt that the profession have looked with eagerness and great interest for all the information that can be given them on the subject. As soon as it had been decided to invite the Congress to meet in London, it became a point of professional honour to take all possible care that the meeting shall be a decided and perfect success. Sir James Paget's acceptance of the highly responsible and arduous, though certainly highly honorable, office of President of the Congress was of the happiest augury. No more entirely fitting and acceptable selection for the presidency could have been made; and the profession will best show their appreciation of Sir James Paget's self-denial in undertaking an office that makes very large demands on his thought and time, by most heartily and strenuously working in every possible way with him and the Executive and other committees for unquestionable success. This cordial co-operation has thus far been very satisfactorily given; and is, of course, absolutely necessary, for even with it the labours of the committees, and especially of the Executive, are very arduous. The business of the Congress has, as our readers know, been distributed among fifteen sections—those of

Anatomy, of Physiology, of Pathology and Morbid Anatomy, of Medicine (with a sub-section for diseases of the throat), of Surgery, Obstetric Medicine and Surgery, Diseases of Children, Mental Diseases, Ophthalmology, Diseases of the Ear, Diseases of the Skin, Diseases of the Teeth, State Medicine, Military Surgery and Medicine, and of Materia Medica and Pharmacology. The selection of the necessary officers of these sections, the appointment of the Presidents, Vice-Presidents, Councillors, and Secretaries, has been an anxious and by no means easy task. The claims of the three divisions of the kingdom, of the metropolis, and the provinces, and of the universities and other great bodies, for representation in the posts of distinction had to be considered and balanced, as well as those of individual merit and eminence, and it would be absurd to suppose that everybody has been quite satisfied that the best possible appointments have in all instances been made. But we believe that, on the whole, the published lists have been approved of as being generally satisfactory. The main responsibility and labour as regards the quantity, character, and conduct of the work in each section has passed now from the Executive Committee to the sectional officers, though the Executive have still plenty of work, and must, of course, exercise a general supervision. The arrangements made for the Museum—of which, by-the-bye, we ought to have spoken as a sixteenth section attached to the Congress—will be found elsewhere in our pages.

So much at present for the work of the Congress ; but the General Committee had to take thought as to regulations and arrangements for hospitality, recreation, and play, as well as for work. This part of the necessary arrangements has been entrusted to a Reception Committee, and we learn that they are already able to give an idea of the nature of some of the entertainments and excursions which will take place during the week of the Congress. On Tuesday, August 2nd, an informal reception will be held in the afternoon at the Royal College of Physicians, and this, it is thought, will afford an excellent opportunity for introductions. On the evening of Wednesday, the 3rd, the English members will entertain their foreign *confrères* at a *conversazione* at the South Kensington Museum ; the Lords Commissioners having in the most liberal manner placed the rooms at the service of the Congress. Entertainments will also be given on Thursday and Friday, the 4th and 5th ; but the character of these has not yet been definitely settled. On Saturday, August 6th, there will be no business meetings later than 1 p.m., and excursions will be made to various places of

interest in the neighbourhood of London. The Harvey Memorial Committee purpose that the statue of Harvey at Folkestone should be unveiled on this day, and for this occasion most liberal arrangements have been made by the South-Eastern Railway Company. A special train will take, free of cost, between one and two hundred members of the Congress with other distinguished persons to Folkestone, where they will be received by a deputation of local authorities. After the ceremony of unveiling the statue, the Mayor and Corporation will entertain their visitors at a banquet in the Town Hall. On the same day an excursion has been planned by Dr. Langdon Down, who has invited 500 members of the Congress to a garden party at Normansfield, Hampton Wick; and on the same day also, Sir Joseph Hooker will receive a number of the members at Kew Gardens. On Sunday, special services will be held in St. Paul's Cathedral and Westminster Abbey, at which Canon Liddon and Dean Stanley will respectively officiate.—*Med. Times and Gaz.*

ADVERTISING DENTISTS.

OUR readers may not be aware of the fact that there is far more advertising done by Dentists in England than in this country. We state it as a fact, and not for the purpose of drawing any conclusions which would be prejudicial to our transatlantic friends. One of the most disgustingly realistic sights that meets the eye, not only in London, but in nearly every large and small town in Great Britain, is a glass case before some Dentist's office, containing sets of teeth which are opening and shutting more or less vigorously, being moved by mechanical apparatus at the back. It is fashionable in this country to talk about Dentists being artists. Surely men who use such detestable means of attracting crowds as this have never yet realised that a Dentist is capable of an artistic idea. An exhibition of rows of naked teeth moving up and down in a glass case is about as near barbarism as anything connected with Dentistry can possibly be. This is an objectionable form of advertising with a vengeance. But another idea, worthy in its originality of a Yankee, has struck our English friends. Toothpicks handed you at a London restaurant will in all probability have a Dentist's name emblazoned on them. Advertising in newspaper columns is not unknown among us even, and this form of making oneself known is a favourite with the English

Dentists. They will grow out of this one day, and it is not too much to say that American example will have done something to push on reform among them.—*Dental Miscellany*.

EXTINCT TOOTHED BIRDS.

AMONG the organic wonders of which from time to time during the past decade announcements have appeared, none have been received with more interest than the discovery of birds with teeth, made by Professor Marsh near the end of the year 1870, in the middle Cretaceous rocks, which in Kansas and Colorado spread out eastward from the base of the Rocky Mountains. So perfect a matrix do the peculiar buff, chalky, or marly beds of the Kansas middle Cretaceous formations furnish for the preservation of organic remains, that almost every bone of the skeletons of some of the birds has been recovered. The material for the study of their osteology is thus almost as ample as that for any living bird. Full advantage of this abundant store of material has been taken. The cases and cellars in the Peabody Museum at New Haven contain the remains of about fifty different individuals of a single bird. Every bone of its skeleton, with the exception of one or two terminal toe bones and the extreme point of the tail, has been recovered, and is in Prof. Marsh's work carefully drawn of the natural size. Never before has it been possible, we believe, to reconstruct so perfectly so ancient an organism.

The volume is divided into two parts. In the first of these the detailed structure is given of the bird on which the author has bestowed the name of *Hesperornis*. The skeleton of this animal, if extended to its full length, would measure about six feet from the point of the bill to the end of the tail. It must have been a typical aquatic bird, without any power of flight, but with strongly developed limbs and a long, flexible neck, whereby it was doubtless endowed with remarkable powers of diving and swimming, and of seizing the abundant fishes of the shallow seas in which it lived. Compared with our modern birds, the two features of this ancient form which most forcibly arrest attention are the teeth and the legs. The teeth were covered with smooth enamel, terminating upward in conical pointed crowns and downward in stout fangs, closely resembling those of mosasauroid reptiles. Their mode of growth and replacement have been determined to have taken place in a manner very similar to that

in some reptiles, the young tooth forming on the inner side of the fang of the tooth in use, and increasing in size, while a pit for its reception was gradually made by absorption. The old tooth, being progressively undermined, was finally expelled by its successor, the number of teeth thus remaining unchanged. The teeth were implanted in a common alveolar groove, as in *Ichthyosaurus*. In the upper jaw they were confined to the maxillary and entirely absent from the pre-maxillary bone; in the lower jaw they extended from near the anterior extremity of the ramus along the entire upper border of the dentary bone. Mr. Marsh believes that they were held in position by cartilage which permitted some fore-and-aft movement, but on the decay of which after death the teeth readily became displaced and fell out of the jaw. This is an important fact in its bearing upon the nature of the teeth found on the same slab of Solenhofen limestone with the well-known *Archæopteryx*. These teeth, it will be remembered, were referred by Mr. Evans to the bird itself—a reference fully confirmed by Mr. Marsh, who says that he at once identified the teeth as those of birds and not of fishes, and by the subsequent discovery of other remains of the bird. In *Hesperornis regalis* there appear to have been fourteen functional teeth in the maxillary bone, and thirty-three teeth in the corresponding ramus of the lower jaw. The wings are rudimentary or aborted, a remnant of the humerus alone existing. They may have gradually diminished from disuse until, as the power of flight ceased, the legs and feet increased in proportion, and assumed the massive dimensions shown in these specimens, or, as Mr. Marsh suggests, the bird may have been a carnivorous aquatic ostrich, never having possessed the power of flight, but descended from a reptilian ancestry, which is strongly recalled by different portions of the skeleton. Among recent birds, the peculiar legs and feet of *Hesperornis* find their nearest analogues in the Grebes of the genus *Podiceps*. They were admirably adapted for propulsion in water, but scarcely served for walking on land. Locomotion must have been entirely performed by the posterior limbs—a peculiarity which distinguishes *Hesperornis* from all other aquatic birds, recent or fossil. The tail appears to have been composed of twelve vertebræ, unique in their peculiar, widely-extended, transverse processes and depressed horizontal plough-share bone. Broad and flat, somewhat like that of the beaver, it must have been a powerful instrument in steering the bird through the water.

The second part is devoted to a description of the remains which have been found of birds belonging to a second order

of Odontornithes, termed *Odontotormæ*. Unlike *Hesperornis*, they seem to have been all of comparatively small size, and to have possessed powerful wings but very small legs and feet. From that contemporaneous form, and from all other known birds, recent and fossil, they are distinguished by certain types of structure which point back to a very lowly ancestry, lower even than the reptile. Their bones being mostly air-filled, would enable the carcasses to float on water until, by decay or the rapacity of other animals, they were separated and dispersed. Hence skeletons of these flying birds are less entire than those of the massive-boned *Hesperornis*. Nevertheless, the remains of no fewer than seventy-seven different individuals have been disinterred. These are included in two well-marked genera, *Ichthyornis* and *Apatornis*, and were all small birds, reminding us by their strong wings and delicate legs and feet of the Terns, like which they were probably also aquatic in habit. Besides the reptilian skull and teeth, the birds of this second order were marked by the character of their vertebræ, which in their biconcave structure recall those of fishes. This is the more remarkable, as in *Hesperornis* the vertebræ are like those of modern birds. Yet these two utterly dissimilar types were contemporaries, and their remains have been preserved in the same strata. Mr. Marsh points out that the transition between the two vertebral types may be traced even in the skeleton of *Ichthyornis* itself, where the third cervical vertebra presents a modification in which the ordinary avian saddle-shaped form appears as it were in the act of development from the biconcave ichthyc form.—Prof. GEIKIE in *Nature*.

DENTAL JOURNALS AND WRITERS.

THERE is only about one Dentist in a hundred that writes for the journals. This is not very complimentary to a learned profession with twelve thousand members, thirteen colleges, and four thousand alumni. Let me give a hint to our non-writers: Nothing tends so much to intellectual development and professional culture as essay writing. He who writes must, as a rule, write intelligently, and to do this he must not only read, but digest what he reads, and analyse and investigate.

Readers, as you sit in your cozy chair and enjoy your journal, do you ever think of the debt of gratitude you owe

the writers in the profession? The few pages you have just read may have cost the writer a day, week, or even month of hard work. As you enjoy this feast do you occasionally give the writers a grunt of gratitude for keeping you and the rest of the profession from becoming antiquated fogies, by supplying you so freely with living, fresh ideas? Young writers should not be discouraged if their first elaborations tumble from the lofty pinnacles they occupy in their producer's imagination. Such efforts are not in vain. They improve your orthography and syntax, if they do bore editors and readers.

Should writers be remunerated? This is a question that will sometimes force itself on the tired brain. Often an effort that represents a day's or week's work has been sent to some journal. The return of such a production "rejected" may answer the question financially, if not satisfactorily. We believe, as a rule, writers should not be paid. A little sacrifice and martyrdom gives an effort spontaneity and independence. A writer who gives a week's labour to an essay, and then gives that to a journal, or travels a thousand miles and then gives it and a hundred dollars expenses freely to an association and the profession, makes a sacrifice. But so do his colleagues make a similar offering to him. The satisfaction of doing a generous deed, and the grateful "Thank you," is often better pay than a few dollars. Were the journals to pay their contributors, they would soon become narrow channels, and their fountain-heads dry and few. Now they are omnibuses for all heads—dry, verdant and perennial.

The importance of journals to the profession cannot be estimated. They are the great educators of the mass, primary schools for students, and advanced colleges for practitioners. All learn from them; many learn by supplying them with their literature; more should learn in this way. The number of direct original contributors to the 'Cosmos' last year was twenty. To the 'Miscellany' there was about the same number. Suppose the contributors to the other journals also numbered twenty. What we receive through our associations materially increase the number of contributors to our literature; but, in the main, those who write for associations and directly for the journals are the same. So the burden of supplying the profession with mental pabulum falls on very few. Every year adds a few new writers to this list; but, unfortunately, many of the pens of our older contributors—men of clear heads and matured experience—are silent, while their heads are fuller of useful thoughts than in the days they were wont to write.

Why are so many of these silent? Some of them could not raise their style and ideas to that lofty standard some editor required for his pages; or, perhaps, some busy practitioner has devoted an amount of time to the preparation of an article for a journal that, if devoted to business, would have put in his pocket from twenty to one hundred dollars. He may also have devoted hours, days, or even weeks to special investigation of his topic, or to experiments that increased his knowledge or confirmed his opinions. His cash outlay in various ways may have been from fifty cents to several dollars. He sends this production to a journal and gets —? Perhaps a grateful "Thank you" from the editor; perhaps not even this much. Or, if he ordered an extra number of the journal, he gets with it a bill for twenty-five cents; and then he gets disgusted and joins the legion of silent writers.

But these writers should remember that, while their productions may benefit the journal and give it financial success, yet journals are only channels through which their efforts reach the profession, and the primary object cannot be obtained without the journal. Our journals are duly believed in and appreciated by the great mass of the profession; yet a few, who give themselves the name of Dentists, shut themselves up in ignorant isolation and take no journals.

Were we a committee to systematize a journalistic plan, we would say—a large reprint for the world, two or three national journals, and then as many local ones as could be maintained.—*Dental Miscellany*.

A NEW METHOD OF CAPPING AND FILLING PULP AND NERVE CANALS.

By S. ARTHUR GARBER, D.D.S.

THE annoyance caused by liquid gutta percha adhering to the margins of the cavity when applying it as a first coating to an exposed pulp accidentally led to the discovery of the following method of using gutta percha. From the common pink-coloured sheet gutta percha cut a thin shaving, in size to suit the case in hand; with pliers lift and dip it in chloroform; carry to and place with gentle pressure over the exposed pulp. The chloroform instantly softens the surface of the gutta percha sufficiently to cause it to adhere, and if ordinary care is exercised, no daubing of the marginal walls will trouble the operator, as in using the liquid form of the same material. Less pain is produced by its use in this way

as there is *less* chloroform brought into contact with the pulp. Evaporation occurs rapidly, and a plastic cement may be applied upon the gutta percha at once, or a gold or amalgam filling may be completed at the same sitting without fear of painful results. This latter suggestion as to finishing the filling applies specially to recently exposed and healthy *pulps*, where but little or no inflammatory symptoms exist. For filling nerve canals, this way of using gutta percha will be found to be far more satisfactory than the method by heat, as usually practised. A tapering strip, cut from the gutta-percha sheet and dipped into chloroform, will pack into a canal with greater facility, and stay where it is put, with less effort than when heated over the flame of a spirit-lamp. This method may have been practised by others, but I have no knowledge of the fact. A trial will convince the most sceptical of its value.—*Dental Cosmos*.

HEVEENOID—THE RUBBER OF THE FUTURE.

HEVEENOID is the name of a new product which is expected to supplant the soft and hard vulcanised india rubber which has for so long a time supplied the market. The base of heveenoid is india rubber, whence the name, from *heeven*, the name given by the natives of South America to the milky juice of the india-rubber tree; and *oid*, a Greek termination signifying *like*. The combination of this base with camphor vulcanised by sulphur constitutes *heveenoid*. The discovery of Goodyear and Day, that sulphur will vulcanise india rubber, first made this substance of value in the industrial arts. While this discovery must always be looked upon as one of great value, the discovery of the new product, heveenoid, by Henry Gerner, opens a new era in the rubber industry, and will, unquestionably, to a very great extent, in time, take the place of the vulcanised rubber of to-day.

The proportions of the constituents to make a soft and hard heveenoid may be approximately given as follows:

<i>Soft Heveenoid.</i>		<i>Hard Heveenoid.</i>	
Rubber.....	2 parts.	.....	3 parts.
Camphor	2 "	.....	2 "
Lime	1-16 "	.....	—
Glycerine .....	—	.....	$\frac{1}{2}$ "
Sulphur.....	$\frac{1}{2}$ "	.....	8 "

Para is best for hard heveenoid, while Nicaragua rubber

answers very well for soft heveenoid, and, in fact, is somewhat more adapted.

It is a well known fact that sulphur will only combine to a very limited extent with rubber, only about 1 to 3 per cent. entering into chemical combination, the remainder of the sulphur added existing only in mechanical suspension. This fact is proved by two simple experiments—first, 1 or 2 per cent. of sulphur is sufficient to vulcanise with and produce the change; and second, if vulcanised rubber is ignited, instead of burning with a steady, smoky flame, it throws off sparks of ignited sulphur, and if the flame be extinguished, the sulphur will be seen to solidify. The odour also of sulphurous acid is very marked. This is not the case with heveenoid; all the constituents of this new product are chemically united. The sulphur unites with the camphor, forming a sulphide of camphene, which either dissolves or is dissolved by the rubber; it seems, however, more probable that the former is the case.

The temperature at which the constituents unite chemically is just above the melting point of camphor. In the manufacture of ordinary rubber, if too much sulphur is added the product is hard and brittle. If such rubber be placed and left sufficiently long in molten camphor, it swells up, and combines with the camphor, acquiring toughness and flexibility, and becomes a desirable material; in other words, it becomes heveenoid.

The process of manufacturing heveenoid is, of course, patented, the patent being held by the Heveenoid Manufacturing Co., of New York. At Hoboken, N. J., works are erected sufficiently large to make over 3000 pounds of stock a day. This company, however, only manufactures specialties, and sells licences to other companies. The great consideration in favour of Heveenoid is the fact that it can be manufactured and put on the market for about 30 to 50 per cent. cheaper than the ordinary vulcanised rubber. Heveenoid is far more pliable, durable, and insoluble than ordinary india rubber. Being a chemical combination it is less impermeable to air, gases, and liquids. As regards odour, it is far superior to vulcanised rubber which, as is well known, possesses a very disagreeable, sulphur odour. Soft heveenoid smells of camphor, which renders it of great service as a moth and insect destroyer. Its application for lining of closets or wrapping of furs, &c., as also for submarine cables, opens a large field for it. Hard heveenoid, when rubbed or when warm, has a slight odour of camphor, but it is not noticed unless under these conditions—the odour being pleasant, is much preferred to the old sulphur odour.

Heveenoid possesses a great value over rubber in the manufacture of jewelry, as the sulphur, being in chemical combination, permits of the use of poor as well as fine gold in ornamenting it. None but eighteen-carat gold can be used with the ordinary vulcanised rubber, otherwise, owing to the free sulphur in its composition, the gold would change colour. As regards colouring, heveenoid is far superior to rubber, as it may be coloured any desired tint. This is something which the manufacturers of rubber have often attempted to do but have utterly failed.

Another property heveenoid possesses is the facility with which it can be sawed and designed. A saw may be used with heveenoid for from one half to three quarters of a day without being sharpened. The sharpening of saws in the working of ordinary vulcanised india rubber is a matter of great expense, as they must be sharpened about every half hour. It is the friction of the saws against the uncombined sulphur in india rubber which dulls them; the sulphur in heveenoid being in chemical combination, can offer no such frictional resistance.

The discovery of heveenoid will certainly give rubber and camphor a much wider application in the arts, as this new product is adapted for many new purposes where ordinary india rubber would be useless. It seems strange that the combination of gum camphor with rubber had not been thought of before, especially when the fact is considered that Goodyear obtained his first patent in 1844, nearly forty years ago. The only way it can be accounted for is the fact that the india rubber business has been a monopoly, and like most monopolies, original investigation in the line of improvements have been prosecuted only to a limited extent. The merits of heveenoid are such as to indicate an exceptionally profitable future, both as a benefit to the industrial arts and as a business of itself.—*Odontographic Journal*.

Dental News and Critical Reports.

NATIONAL DENTAL HOSPITAL.

THE annual meeting of subscribers of the National^d Dental Hospital was held last week at the Hospital, 149, Great Portland Street, W., when the President, Lord Enfield,

presided. The reports of the Committees showed that the Institution was progressing in every way, the patients having increased to 13,146, and the number of cases treated to 17,716. They announced that a grand evening ballad concert would be given on the 24th of May next, at St. James's Hall, when the following distinguished artistes had, amongst others, kindly consented to give their service: Mrs. Osgood, Miss José Sherrington, Madame Jenny Pratt, Miss Jessie Royd, Miss Thorndike, Madame Enriquez, Madame Mary Cummings, Madame Helen D'Alton, Mr. William Shakespeare, Mr. Vernon Rigby, Mr. Bernard Lane, Mr. Redfern Hollins, Mr. Dudley Thomas, Mr. M. Maybrick, Mr. Lewis Thomas, Mr. Herbert Thorndyke, Mr. James Sauvage, Mr. Frank Ward, and it was hoped that the sum it would realise would cover the expenses of the extension of the premises, which was just being carried out, on account of the increasing number of patients and students. The special attention of the subscribers and the public was drawn to the great use of the hospital as an educational establishment, fulfilling the object of the recent legislature for regulating the practice of Dental surgery, and it was announced that the number of students attending was largely in advance of those of former years.

Votes of thanks having been accorded to the Committees and Officers of the past year, and those of the present year having been elected,

Mr. OAKLEY COLES proposed a vote of thanks to the chairman, which was carried by acclamation. Mr. Coles said that there were many noblemen who had given their names to institutions similar to theirs, but they did not always take so much personal trouble and interest in the welfare of hospitals as his lordship had done in that of the Dental Hospital since its establishment. They regarded that interest as a proof that the Charity was doing valuable work.

The CHAIRMAN, in acknowledgment, said that he considered it to be the duty of the presidents who gave their names to institutions such as the Dental Hospital to take some pains to see that it was properly conducted. During the twenty years he had been president of the institution he had made a point of either being present at the annual meetings or attending at the hospital occasionally to examine its books, and to see if it had been managed efficiently and economically, and he had no hesitation in saying that it had been so managed. As to the kindness and attention of the medical staff, a case came under his notice the other day of a young woman who had enjoyed the benefits of the hospital,

and she had borne the highest testimony to the kind treatment received at their hands. As the hospital was founded to benefit the poor, he hoped that persons who were in a position to pay the proper fee would do so, as it was not right to impose upon the honorary medical staff, who gave their time and skill to the poor and not to those who could afford to pay for advice. He concluded by stating that he had always taken a deep interest in the work of the hospital, and had always been able to say, in reply to questions put to him about the institution, that it was conducted in an admirable manner, and that the medical staff had been most kind to the poor patients who came under their care.

THE EXETER DENTAL HOSPITAL.

THE first Annual General Meeting of the governors of this institution was held at the hospital in Bedford Circus on the 15th ult., Mr. W. H. Ellis, President, in the chair; the Mayor and Sheriff were present, and there was a good attendance of the resident clergy and gentry.

The PRESIDENT remarked on the great success which had attended the operations of the institution. It was established in premises most centrally situated, and which were, in the opinion of the committee, the best that could possibly have been found for carrying on the work. Cases were now being treated at the rate of over 5000 per annum. The thanks of the governors and citizens generally were due to the staff for the large amount of work they had done gratuitously and skilfully for the poorer classes. He thought the best mode of showing their appreciation of these services would be by continuing their subscriptions in the liberal manner in which they had commenced.

The report showed that, in spite of the large outlay for furniture, &c., in starting the hospital, there was a small balance in the hands of the Treasurer.

Mr. BEVAN Fox, in proposing a vote of thanks to the Mayor and Sheriff for their attendance, observed that it might seem from the large number of cases treated that the poor of the city had been neglected prior to the foundation of the hospital. But they must not go away with that idea, for he knew from his own practice, and that of others, that a very great amount of time and attention had been given by Dentists to gratis patients. He might perhaps have been a

little selfish in urging the formation of this hospital, but he must say he found these gratis patients a very severe tax on his time, and he knew that others had found the same. All such cases could now be referred to the hospital, where it was possible to give them much more time and attention than it had been possible to do when they were so liable to encroach on the hours which had to be devoted to private practice.

Mr. ELLIS, the President of the institution, proposed a vote of thanks to the staff, and especially to the Hon. Sec., Mr. H. B. Mason. A vote of thanks to the Treasurer, Mr. F. Townsend, concluded the proceedings.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

THE Hon. Sec. of the association, Mr. Hamilton Craigie, requests us to correct a slight inaccuracy in our report of the meeting in February. Mr. F. B. Imlach, who has been for some time a fellow of the society, was elected a vice-president, and not, as stated, an honorary member.

Mr. E. M. Phillips also writes from Liverpool complaining of some errors in the description of the specimens exhibited by him. It should be remembered that these reports are not furnished to us direct, but are reprinted from the medical journals, and we are always careful to state the source whence the report was obtained. Under these circumstances we can scarcely be held responsible for errors, either of omission or commission.

Our disapproval of the political aims of the association does not interfere with our appreciation of its value as a scientific society. We readily admit that its meetings are always more or less interesting and instructive, and we feel sure that the published reports of the proceedings are far better appreciated by the readers of this Journal than by the medical practitioners who may glance through them in the pages of the 'Lancet' or 'British Medical Journal.' The council of the association appear to think differently, and they are, of course, entitled to act according to their opinions. But if the report is sometimes a little garbled by the time it reaches us, we cannot help it.

Miscellanea.

AMERICAN NOTES.

FROM A CORRESPONDENT.

AMERICAN SUPREMACY.

AMERICANS are never tired of bragging of their supposed supremacy, but this brag is largely the result of a somewhat narrow and ignorant prejudice. In some subjects, as that of Dentistry, undoubtedly the Americans are in many respects ahead of the English. What is the reason for this? As I have said before, I repeat now, it is because of the much greater prevalence of oral irregularities in America than in Europe, that Dentistry, as a science, has progressed so markedly in this country. The demand for Dentists has created the supply, as it always will. But there are many men who are fully aware of the existence of inferior teeth in the United States, yet fail to see that it has anything whatever to do with progress in the profession. A gentleman who spoke at a meeting of Dentists at Philadelphia a short time ago (Dr. S. H. Guilford), gave some hints on "Incidents of Foreign Practice," he having lived six months in Paris. In his opinion, the two prominent reasons for Dental progress in America are:—First, the practical turn of mind and natural faculty of invention of the native American, which has led him to leave to others largely the investigation of the theory and causes of the evils existing in the oral cavity, while he devoted himself more immediately to the more practical part of their correction. The second reason is found in the liberality which characterises American Dentists, leading them to associate together for the interchange of ideas, and this in turn leading to the establishment of Dental colleges, where the best of instruction is freely imparted at a price barely sufficient to cover the expenses of conducting the institutions. Now, there is an important conclusion to be drawn from the first admission made by Dr. Guilford, and it is that the representative American Dentist is more inclined to follow a wholly empirical mode of treatment than is the English Dentist. "He leaves to others largely the investigation of the theory and cause of the evils existing in the oral cavity, while he devotes himself more immediately to the more practical part of their correction." It must be admitted that if this statement is true it does not reflect

much credit on the American Dentist. It points to the conclusion that he is content to let others go to the root of the question as to the cause of tooth disease, while he blindly does what his preceptor taught him was the best thing to do under certain circumstances. I do not desire to disguise the fact that there is necessarily a certain amount of empiricism in all medical and surgical treatment. Why certain effects follow certain causes is not fully known; but there are some general principles on which men work, some major or more general, and others minor or less general, and these principles can be the more implicitly relied on as guides when the practitioner has done what we are told the American Dentist leaves to others, made an investigation of the causes of oral troubles.

The mutual admiration gatherings, which are always developed very readily when a few American Dentists get together to talk about European affairs, are valuable as revealing the weak points in the armour of the mutual admirers themselves. It is well that it should be so. It profits the Americans and Europeans also. The antithesis caused by using the words theoretical and practical in the way Dr. Guilford used them, is very well as an *ad captandum* effort where such an effort is not to be immediately subjected to any searching criticism. Certainly it is better for a Dentist to be practical than theoretical. The American Dentist is the former, says the Doctor; let the Europeans be theoretical if they like it. If a man's capacity is not sufficient to enable him to be both theoretical and practical, perhaps he had better be the latter only. But surely it is better that a man should be both, that he should be able to grasp the cause of a disease, and then he will be so much better able to know how to apply a practical remedy. In this way theory, as to the cause of evils, is by no means a despicable possession. In common fairness, however, it must be said that the American Dentist is not so regardless as to the cause of oral defects as might be imagined. He is not simply a devotee of empiricism. He realises, as do all men, that the practitioner who grasps the cause of a disease is far more likely, other things being equal, to treat it successfully, than a man whose sole information consists in a knowledge of the mechanical part of an operation.

It is true that the American Dentist evinces a greater tendency to associate with his professional brethren than does his European contemporary. But the establishment of Dental colleges is not necessarily the result of this fraternising spirit. Colleges arise, rather, out of a felt need for education, and this may be traced back in its turn to the greater amount of decay which is found in the teeth of the

American than in those of the people of the East. Although the establishment of Dental colleges cannot be said truthfully to be the result of the local gatherings of Dentists, which are so popular all over the Continent, yet these local gatherings are productive of a great deal of good. They serve to open men's eyes, and give them a desire to learn something more than they already know. It is true there are some who will neither read a magazine nor attend a meeting of their fellow-workers. They say that they have learned all they need to know. Such men are all too abundant, and are really a pull-back in the advance of the profession. Their profound ignorance can by no possibility help on to the achievement of supremacy by American Dentistry. But they are growing fewer in numbers relatively. The western, no less than the eastern world, is moving onwards in the direction of more light. The coming generation of Dentists will not, perhaps, possess all the cardinal virtues, nor all the skill and honesty in their work that one might desire, but with the amount of training they are having they cannot fail to be ahead of their predecessors; and not only will they be better practitioners, but they will take care to make the world aware of the fact.

FLETCHER'S DENTAL METALLURGY.*

IF Mr. Fletcher has not added to our store of facts in the above book, he yet merits our thanks for the concise manner in which he has brought together all that the Dentist is usually called upon to remember about metals and their compounds. The volume can be made into a regular receipt book, as it is interleaved with blank pages, and many a note of practical value may be thus added. Some of the tables are really very useful, and the remarks upon the general properties of metals are suitable to refer to if only to assist the memory, even supposing that our knowledge of the facts themselves was at one time possessed.

Mr. Fletcher has long been quite an authority upon all apparatus employed for the purpose of giving heat or for melting metals. His gas furnaces mark quite an important era in the construction of air and gas appliances. The use he has made of solid flame burners for special heating purposes is well known, but the present book is something

* 'Practical Dental Metallurgy.' By Thomas Fletcher, F.C.S. Warrington: Mackie, Brewtnall & Co.

more than a mere catalogue. The behaviour of metals under the blowpipe and their various properties is well gone into, and many practical receipts given, more particularly of those compounds of gold, silver, and platinum we so generally use for filling teeth. All those alloys which have been employed for stopping purposes are alluded to, and many good directions for their manufacture given. Each metal is taken by itself, and its principal compounds briefly described, so that the whole range of metallurgy has been laid under contribution, and those items that should practically interest the Dentists are dwelt upon with great clearness. We have no doubt that the book will be found in most laboratories, and that it will be found, also, to be a useful companion.—
PHOSPHOR.

A USEFUL TELLTALE.

MR. GEORGE PEDLEY, of High Street, Borough, sends us the following very practical suggestion :

As the compressed gas is now used so extensively as an anæsthetic, it may have befallen others of your numerous readers besides myself to find that in the natural anxiety for the success of an operation and the welfare of the patient they have forgotten to turn off the gas at the bottle, resulting in the loss of all left.

To prevent this annoying accident I have devised and adopted a telltale, made as follows :—Into one neck of a three-pint wash bottle, nearly filled with water, is inserted a quarter-inch glass tube, made airtight by passing through an india-rubber stopper, the upper end is bent for convenience of attachment to an india-rubber tube connected with the gas bottles ; the lower end reaches to the bottom of the bottle, and is converted into a valve by closing it with cork, drilling a few holes near the bottom, and covering them by winding spirally a narrow strip of dam rubber, secured above and below. This effectually prevents any passing of water into the inlet tube, and it also minutely divides the gas, which is consequently washed in its passage through the bottle. Into the other or outlet neck is inserted a glass tube, about ten inches long, as large as the neck will admit, which it practically lengthens ; the object is to prevent the water being blown over into the india-rubber tube attached to it, and thence into the bag from which the gas is inhaled.

The bottle stands on a shelf, and is in permanent connection with two 100-gallon bottles secured to the back of the operating chair.

The smallest escape of gas is made obvious, and it always affords complete evidence that the gas is thoroughly turned off at the supply.

March 17th, 1881.

BRITISH DENTAL ASSOCIATION.

THE second annual statement of the accounts of the British Dental Association has just been published, and must be considered, on the whole, as very satisfactory. The income for the past year amounted to £485, of which one half was devoted to the maintenance of the journal of the association, leaving £242 available for general purposes. On the side of expenditure, legal charges absorbed £65, printing and stationery £63, and sundry other expenses £40, leaving a balance in hand of £75 on the accounts of the year, not including £8 8s. due for unpaid subscriptions.

The "Journal Account" shows a loss of £54, but then the somewhat unusual course has been taken of including the whole cost of the purchase from Mr. George Butcher (£200) in the first year's balance sheet. The usual plan in such cases is to spread the amount over several years, writing off say £50 per annum. The fact that whilst the printing and publishing cost £319, the whole expenses of the editorial department amounted to but £75 for the year, tells of an amount of gratuitous work which we hope the members at large will duly appreciate.

In the general statement of assets and liabilities we find that the association has still in hand a balance of £100 from the Dental Reform Fund, and that, with the balance of last year's receipts over expenditure and sundry amounts due, its assets amount to nearly £400; whilst debts due by the association and the nominal loss on the 'Review' amount to £153, leaving a balance of about £240. This statement, though no doubt perfectly correct in the eyes of a skilled accountant, might we think have been given in a form which would have been more easily intelligible to ordinary minds. Technically, the amount due for bills unpaid is an asset so long as the money is in hand, but it looks odd to see it so considered, and also to see the "'Review' deficit" and "cash in hand" lumped together on the other side of the statement. In fact, we are by no means sure that our read-

ing of this part of the accounts is as correct as it should be, but we are greatly consoled by the fact that those whom we have questioned on the subject (we have not ventured to apply to headquarters) have been as much mystified as ourselves. Perhaps some one learned in these matters will take the trouble to enlighten us. At all events, we gather that the finances of the association are in a satisfactory condition, and since many of the items of last year's expenditure were of an exceptional character, such as the expenses of preparing the articles of association, &c., there will be a fairly respectable sum available for the special objects of the Association during the current year.

"*Legal charges*" is an item that we do not wish to see reduced at present, but we hope that the Executive may have something better to show for it in the next report. They have at least ascertained what *cannot* be done; we trust that their next move may be attended with more credit to themselves, and with greater benefit to the profession in general.

DENTAL PROCEEDINGS OF THE GENERAL MEDICAL COUNCIL.

A SECOND volume of 'The Proceedings of the General Medical Council and of the Executive and Dental Committees in regard to the Registration of Dentists' has lately been published. It contains the history of a very eventful period, viz. from January, 1879, to February, 1881. One of the first things in the book is a report from the Registrar on the progress of the registration up to December 31st, 1878, from which it is evident that his position at that time was not an enviable one. It is true that he was "advised by the legal adviser of the Council that his duties in connection with the Dentists Act were purely ministerial, to see, that is to say, that the terms of registration laid down in the Act were fully complied with, and that he was bound to register all applicants who, on their own responsibility, signed the declaration in the schedule;" but even this apparently simple business seems to have been attended with a vast amount of trouble. One difficulty was to secure the fee, application for which met with such replies as "times is bad," and a proposal to "pay by instalments." A favourite mode of remittance is said to have been a Post-office order for £1 19s. 11d. and a penny stamp, thus saving

the applicant the sum of one penny, but greatly complicating the Registrar's accounts.

After this we have the discussions on the Dental curriculum and the recognition of foreign diplomas. With reference to the first, there is a valuable report by the Executive Committee in which attention is called to the fact that "in the requirements for the Dental Diploma of the Royal College of Surgeons of Ireland, the subject of Medicine is omitted, and there is no provision for the study of Dental Anatomy and Physiology; Mechanical Dentistry is included in Practical Surgery, Metallurgy is included in Practical Chemistry, and nine months only of attendance on the practice of Dental Surgery is required. The educational curriculum of the Irish college is therefore distinctly inferior to that of the other three colleges, and the Committee are of opinion that it should be strongly recommended to this college to extend the period of attendance on the practice of Dental Surgery at a hospital which is required, and to include at least the subjects of Medicine and Dental Anatomy and Physiology in the requirements for its diploma."

Amongst the foreign correspondents the notorious John Buchanan is conspicuous. In his prospectus he characteristically urges applicants to "take advice from no one, for they must bear in mind that the allopathic bullies are so desperate, and the swindling shops of bogus colleges are so numerous, that our students must not be imposed upon!"

But we cannot afford space for further extracts. By clear arrangement and by the addition of notes and references wherever required, the Registrar has made a really interesting and readable volume out of what would at first sight appear to be most unpromising materials. There must be many in the profession who will be glad to see the history of the negotiations between the Council and the British Dental Association set out in a connected form, and few whom a perusal of this little book would not disabuse of some mistaken ideas and misunderstandings.

We take this opportunity of correcting an error which appeared in our notice of the 'Medical Register.' Speaking of its increase of size we said that the 'Register' for 1869 contained pp. 510, and that for the present year pp. 594. So small an increase in twelve years would not have been worth noting; the volume for 1881 actually contains 900 pages.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following were the questions given at the January examination for the licence in Dental surgery:

Anatomy (one question *only* to be answered).

1. Give the muscles connecting the lower jaw to the hyoid bone; mention their relations and uses.
2. Name the bones entering into the formation of the carpus, with the synovial membranes, ligaments, and muscles in close relation.

Physiology.

In connection with the cerebro-spinal axis, define what you understand by the terms cerebral commissure and nerve, and give the relative functions of each.

Chemistry (one question *only* to be answered).

1. Describe the nature and preparation of iodine, mentioning its combinations with oxygen and hydrogen. State the formulæ for each according to the old and new notations.
2. How is lead obtained from its ore? Name its soluble and insoluble salts and give tests.

Surgery (one question *only* to be answered).

1. Mention the tumours to which the upper jaw is liable. Describe the operation for excision of the jaw, giving the lines of incision and the subsequent steps of the process.
2. Describe what you mean by the term "first intention," and what means of treatment will conduce to that result.

Medicine (one question *only* to be answered).

1. Define nephritis, enumerate the causes, and give the treatment.
2. Croup. Give the symptoms which would indicate a catarrhal or simple inflammatory attack as distinguished from a diphtheritic one. When, and what emetics would you employ? What are the indications for tracheotomy?

Dental Anatomy (two questions to be answered and not more).

1. Mention the three different modes of attachment of the teeth to the jaws found in the animal kingdom, and give an example of each.

2. What is the difference in the form of the lower jaw in an infant at birth, a child of twelve years of age, an adult, and an edentulous patient over sixty, and how is the difference produced?

3. Mention the structures from which the enamel, dentine, and cement are respectively developed, and how these formations take place.

Dental Surgery and Pathology (two questions to be answered and not more).

1. What is an epulis, where is it generally found, and to what class of new growths does it belong? What are its distinctive characters and microscopical appearances?

2. What would you consider the essential points in order that the operation of stopping a tooth should be successful, and how would the consideration of these points influence you in stopping a very fragile, a very tender, or a very conspicuous tooth?

3. What are the relative advantages of gold and vulcanite in artificial dentures, and in what circumstances should the one or the other be preferred?

ANDERSON'S COLLEGE, GLASGOW.

At a meeting of the trustees, held on the 22nd inst., Mr. David Taylor, M.B., C.M., L.D.S., was appointed Lecturer on Dental Anatomy and Physiology, in room of the late Mr. J. Crooks Morison, L.D.S.

APPOINTMENTS.

MR. BURTON LLEWELLYN HARDING, L.D.S. Eng., of Oxford Street, Manchester, has been appointed Dental Surgeon to the Governesses Institution and Home, Manchester.

The name of Mr. W. G. GORDON JONES, L.D.S.I., was by error printed Tours in the notes under this heading which appeared in our last issue.

To Correspondents.

Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.

2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

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ANSWERS TO CORRESPONDENTS.

- “**L.D.S.**”—Write to Mr. J. S. Turner, George Street, Hanover Square; you must give your name and address, but your communication will be treated as confidential.
- “**ONYX.**”—We really cannot advise you; consult your own inclinations, or take the advice of personal friends.
- “**SERRATUS.**”—The idea is not a new one, or, at all events, the amount of originality is scarcely sufficient to warrant our insertion of your detailed description.

Communications have been received from Messrs. Thos Gaddes (London), Hamilton Craigie (London), E. M. Phillips (Liverpool), W. Hern (London), Rees Price (London), J. R. Brownlie (Glasgow), H. B. Mason (Exeter), Jas. Hardie (Alloa), Geo. Pedley (London), “**L.D.S.**,” “**Serratus**,” “**Onyx**,” &c.

BOOKS AND PAPERS RECEIVED.

- ‘Lancet.’
- ‘Medical Times and Gazette.’
- ‘British Medical Journal.’
- ‘Pharmaceutical Journal.’
- ‘Gazette Odontologique.’
- ‘Johnston’s Dental Miscellany.’
- ‘London Medical Record.’
- ‘Exeter and Plymouth Gazette.’ &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

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LONDON, APRIL 15, 1881.

VOL. XXIV.

A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter
Session, 1880.

By THOMAS GADDES, L.D.S. Eng.,

Lecturer also on the Elements of Histology; Assistant Dental
Surgeon to the National Dental Hospital.

ABSTRACT OF LECTURE V.

THE substance which forms the main part of most teeth was, by Professor Owen, termed "dentine." There have been many varieties of dentine described, and terms coined to express them, such as hard or true dentine, plici-dentine, vitro-dentine, osteo-dentine, dendro-dentine, areolar-dentine, and globular dentine. But Mr. Charles Tomes has, in a paper read before the Royal Society on the 8th of March, 1877, added much to our literature on this subject, and suggested the reduction of this long string of terms to the following expressions of typical dentinal structure, viz. hard, unvascular dentine, plici-dentine, vaso-dentine, and osteo-dentine.

The order in which I shall consider these varieties of dentine will be in the reverse order to which they are there enumerated, so that we shall be more in keeping with the principle of our synthetic study of odontology.

Osteo-dentine.

Osteo-dentine consists of a hard matrix, permeated by a system of large channels, which contain pulp matter. The presence in the matrix of true dentinal tubes may or may not be a condition necessary to the structure; neither are lacunæ nor laminæ characteristic of it. Osteo-dentine is unlike true dentine, but very much like bone; indeed, in many fishes, not only does the base of the teeth blend insensibly with, and is quite indistinguishable from, the surrounding coarse bone by which the tooth is ankylosed or fixed to the jaw, but the endoskeleton of many fishes resembles

osteo-dentine in structure. The reason why such a tissue is called "dentine" when it has no resemblance to true dentine, and is so much like bone, is because it is developed from a dentine papilla.

When dentinal tubes do exist in the matrix, they are of small calibre, and *radiate from the several canals* which permeate the matrix, and not from a common pulp chamber.

The canals have no relation to the blood-vessels of the pulp, neither do they necessarily contain blood-vessels, but they do contain pulp matter, which may also contain blood-vessels.

You will find described in books, even in Mr. Charles Tomes's 'Dental Anatomy,' that osteo-dentine is a tissue in which there are vascular canals, and that the matrix around those canals is disposed in concentric laminae, and interspersed among the dentinal tubes are lacunae. But, on account of a lamination of the matrix being also occasionally found in vaso-dentine, and because lacunae are very frequently absent from bone in fishes, and very frequently from osteo-dentine, these characters are not found useful in practice. And the appearances and structure which I have already described must at present be taken as giving the characters of osteo-dentine. Therefore it would be well for you to make such corrections in your copies of Tomes's 'Dental Anatomy,' not only in the description of osteo-dentine, but also in that of vaso-dentine.

According to the order of differentiation of tissues, and from its chemical composition (see Lecture III), it will be apparent that osteo-dentine is a tissue closely related to bone, and in thus resembling bone most of any variety of tissue developed from a dentine papilla, we must place it lowest in the order of specialised dentinal tissues.

Examples of osteo-dentine are to be found in the teeth of the pike, in sharks, and in many other fishes.

Vaso-dentine.

Vaso-dentine consists of a hard matrix, which is permeated by a system of canals far larger than ordinary dentinal tubes, which anastomose freely with one another and contain capillary blood-vessels and nothing else. That is to say, each several canal contains a capillary of the same calibre as itself, and no cellular or other pulp tissue, for which, in fact, there is no room. True dentinal tubes may coexist with the large capillary canals; but if they do the tubes *radiate from the central pulp chamber* and not from the canals. In these

respects does vaso-dentine differ from osteo-dentine, in which latter we saw that the large channels contained pulp matter, and that when dentinal tubes be present they radiate from the canals and not from a central pulp. But the greatest distinction between osteo-dentine and vaso-dentine, is in their different modes of development. But this we must leave till we, in due course, come to the development of the tissues.

The most typical vaso-dentine is in the tooth of the hake, the matrix of which is solid and contains no true dentinal tubes. The pulp is large, is contained in a central canal, is richly vascular, and red blood circulates abundantly through the capillary channels, so that the tooth, when the fish is alive, is brilliantly red. It is also found in the cod tribe.

Plici-dentine.

Plici-dentine is a variety of complex dentine, brought about by foldings and subdivisions of the formative pulp. In certain fishes, as the bony pike of North America (*Lepidosteus*), and some batrachia (*Labyrinthodont*) and reptiles (*Varanus*), there are instances of this kind of complexity.

The tooth appears to be of a simple conical kind, with the exterior surface merely striated longitudinally. On transverse section these furrows are seen to correspond with dippings in of the dentine, and the dentine is, as it were, in folds. In an extinct batrachian the inflected converging folds gave the tooth such a degree of complexity that, from the appearance of the tooth, Professor Owen termed the animal *Labyrinthodont*.

In the *Varanus* (monitor lizard) the process of calcification of the pulp takes place in such manner that in the upper half of the tooth a cap of ordinary unvascular dentine is formed, in which the dentinal tubes radiate from a single central pulp cavity. But in the lower part of the tooth slight longitudinal furrows appear on the surface, which, on transverse section, are seen to correspond with dippings in of the dentine, and the dentine is apparently in folds. Still more towards the base of the tooth these dippings in, or processes of dentine, are seen to coalesce and enclose portions of the pulp; so that in a section of a tooth of a *Labyrinthodon* the processes of dentine are seen to pursue a wavy course, and from the several enclosed portions of pulp the dentinal tubes radiate. Each enclosed portion of pulp and the surrounding dentinal tubes form what is termed a dentinal system. Thus, plici-dentine, when seen in its most complex form, as in the *Labyrinthodon*, is made up of many dentinal systems; and the dentinal tubes of one system com-

municate with those from surrounding systems. They communicate directly with each other, and also with lacunæ-like spaces which intervene between the systems. The presence of these spaces led Professor Owen to the conclusion that each convoluted folding of the dentine was covered by an equally convoluted plate of cementum. But of the erroneous-ness of this view, and a further exposition of plici-dentine, I must leave till we treat of development, when I hope to make this structure more comprehensible. I shall only here add that from the arrangement of the pulp, or rather from the fact of the channels in the dentine containing pulp-matter, we must look upon plici-dentine as allied to osteo-dentine, only it is developed from odontoblasts and not from osteoblasts.

Dental Surgery and Medicine.

ALVEOLAR ABSCESS.

By L. C. INGERSOLL, Keokuk.

(A Paper read before the Iowa State Dental Society.)

PHOTOGRAPHED in your minds I think I see this picture—a swelled face, distorted features, an agonized countenance and a discharge of matter as from the crater of a boil. The picture changes—the swelling goes down, the painful expression is gone, the features are restored, and even the mouth presents its wonted aspect, except that an opening is left on the gum through which slowly oozes, at intervals, purulent matter. This is *alveolar abscess*. These two pictures present only the external aspects of the case; and this to the non-professional mind is all there is of our subject. But it is a seriously diseased condition, demanding a cure. To attempt a cure, as is sometimes done, by treatment aimed at suppressing the symptoms, would be as far astray from the right course as to attempt a cure of a disordered and foul stomach by cleansing the teeth with a newspaper advertisement of “fragrant sozodont.” As Dentists, proposing to treat a case of *alveolar abscess*, we need, first to get a clear perception of the location and the nature of the disease; also the different forms of disease arising from the same cause, which, from their resemblance to each other, are often mistaken for alveolar abscess, and treated as such, though

usually resulting in failure. All formation of pus about the roots of pulpless teeth is not an indication of alveolar abscess. It must be borne in mind that the same cause may induce a variety of forms of disease, varying with the variety of circumstances under which the cause operates. Hence, when we speak of alveolar abscess, we need to discriminate between the different forms of disease located in the alveoli, and having similar manifestations.

To include all these in a single essay and on an occasion like this, would occupy too much of your time and weary your patience. However clear may be the apprehension of the profession concerning the origin and development of pus about the roots of teeth, from the varied treatment adopted by members of the profession and published in our journals, and the varying results of such treatment, it is evident that there is great confusion regarding the pathology and therapeutical aspects of the whole class of diseases known by a common name, *alveolar abscess*.

There is a tendency with all persons who apply themselves to the cure of disease, to adopt specifics, to elect a remedy which shall always and with uniform effect be applicable to any specified disease or class of diseases having a common origin. The popular mind is full of this notion, and the scientific mind is strongly tinctured with it.

This is a *natural* tendency, and, therefore, to a certain extent right. But infallible rightness in this direction can only be based on perfect knowledge of all natural laws and of all possible departures therefrom. We may regard what is called the theory of specifics, the *law* of specifics. For it is undoubtedly true that every form of disease may be counteracted in good measure by *some* remedy if only applied at the right time and in the right way. But to do this requires a perfect knowledge of the disease and its every conceivable aspect, and a perfect knowledge of all counteracting remedies.

The evil of this tendency to use specifics is discovered in the habit of some, perhaps I may say *many* practitioners, to fall into a routine practice—to treat every disease that they can classify under a popular or scientific name with the same unvarying remedy, which they with most approving confidence call “their method.” I once heard a druggist remark concerning a reputable physician, that to put up his prescription in case of any miasmatic disease, all he needed to know was whether it was prescription number one, number two, or number three, for they were always the same, and in the same order. So of every other disease he was accustomed to treat. Of course, it was incumbent on the patient to

bring to him for cure the exact form of disease that was curable by his remedy.

Although such routine practice may be very unscientific and unwise, it is not wholly nonsensical, for there is some measure of rightness in it. The tendency to adopt a remedy and to persist in its use, is the result of a misconception of the nature, modifications, progressive stages, and many varying manifestations of disease, under an almost endless variety of outward circumstances and physiological conditions, although arising from the same cause.

The simplest dictate of common sense, as well as science, is that disease must be treated in every case according to its nature, and not according to its name.

There is a very grave practical mistake in calling all disease located in the alveoli and accompanied with swelling of the external parts, *alveolar abscess*. Still another mistake is made in supposing that if there is added to these conditions a discharge of matter, the disease must certainly be *alveolar abscess*. Among the former class may be named tumefaction of the peridental membrane, and induration of the gum; among the latter, necrosis of the root or of the parietes of the alveolus, ulceration of the root membrane, and a deposit of lime salts about the apex of the root, which can be nothing else than sanguinary calculus. Again, we meet with encysted tumours which have so markedly the appearance of alveolar abscess as to be readily mistaken for that disease.

Among all these resemblances of different diseases, originating primarily in the same cause, it is essential to the treatment that we note well the differences as well as the resemblances.

The limit of this paper will not permit me to enter into the pathology of so many forms of disease as I have indicated, though allied to my subject. I wish only to put my professional brethren on their guard against naming and treating every disease of the alveoli, with or without the discharge of pus, as *alveolar abscess*.

I do not, however, wish in this connection to fall into the mistake myself of ignoring the progressive stages of disease, or of supposing that it must complete the entire course of its manifestations before it may with diagnostic propriety be distinctively named.

I desire now to take you out of this confusion of my subject, and separate from things that resemble and things that differ, a definite form of disease about which there can be no dispute as to its nature or its name, and present before you a *rationale* of treatment.

I shall define it thus: A disease located within the alveolus and upon the root of a tooth, which, in its development, produces pus, then forms a tube or canal leading out through the mucous membrane of the mouth, or externally through the skin, through which tube the confined pus is discharged. This, you will all admit, may rightly be called alveolar abscess. I wish still farther to limit my subject to this development of disease located at the apex of the root, with its sac of pus closing around the apical foramen.

By keeping in mind the foregoing definition and limitations we may discuss the subject with more clearness and profit.

Let us consider first the pathology, then the treatment of the disease. It is palpably evident that an abscess cannot be located as I have described, without the previous death of the pulp. An abscess surrounding the apical foramen must cut off all nerve and vascular connection of the pulp with other vital parts; and this means death. The inflammatory conditions which mark the initiation of the disease may first be manifest in the root membrane, or first in the pulp. While it is usually the case that a tooth pulp dies from exposure caused by decay of the hard tissue that surrounds it, or the irritation of a filling, it sometimes dies without decay or exposure. After death it undergoes decomposition, and becomes a mass of putrid matter confined within the pulp chamber and root canal. If the opening through the cavity of decay is free, this decomposed matter may escape, and not be productive of abscess. But if it is closed, as it usually is, with particles of food and demineralized dentine, it must remain a source of irritation and disease to contiguous parts. It may always be assumed that a pulp never dies a spontaneous death without exciting inflammatory action in the root membrane around the apical foramen. This, therefore, being a condition existing at the time of the death of the pulp, it is still farther excited by the irritating presence of the putrescent matter formed by the decomposition of the substance of the pulp.

The capillary vessels become engorged with blood, circulation through them is impeded, some of them burst their coatings and add to the waste matter already accumulated; severe pain ensues, caused by pressure of this waste matter on the nerve fibres, and greatly added to by the expansive force of the gases evolved in the decomposition, and by this destructive process enough of the poison of dead matter is generated to cause the death of the patient unless it can in some way be disposed of without entering the circulation.

Here the protective power of nature comes in to rescue life from destruction. This is accomplished in one of two

ways. There is always waste dead matter enough in the body to cause death if it is allowed to remain. Nature has provided two methods for its removal. One is by a general system of absorption, through which all the waste of the body, excepting excrement, is disposed of, and this waste may be said in general to equal in amount all that is taken into the body daily as nutrition. When from any diseased condition there is accumulated an unusual amount of waste matter, the absorbents are excited to their utmost capacity of performance. If this process succeeds and thus gives time for the life functions to regain their wonted vigour, the health of the parts is restored. In case of alveolar abscess, when disease is tending in this direction, under favorable circumstances the accumulation of waste matter may be so slight that it will be readily disposed of by absorption and thus an abscess be prevented, although the pulp of the tooth dies. But if the pulp of the tooth be large and go into decomposition rapidly—too rapidly to be absorbed and disposed of functionally, nature has provided another way to protect herself from this poison, which, if left to remain, would infiltrate into surrounding tissue and ultimately cause death. A sac is formed about the root of the tooth, beginning in the root membrane that covers the apex, into which this purulent matter is securely gathered—the absorbents meanwhile doing their best. But when “worst comes to worst,” the sac continuing to expand, the surrounding tissue being absorbed to make room for it, the pressure on the nerves is so great that none but those who have experienced it can know its severity.

At this point nature undertakes the work of expelling this foul matter from the body. This is done by forming a tube, leading from the sac in which the matter is confined, out to the surface of the mucous membrane or of the skin, where the matter may be discharged. You will observe that by the formation of this tube, contamination of surrounding tissue is prevented, and the matter safely conducted to the surface. Otherwise it would be like the overflow of a cess-pool in the city. This tube is the underground drain to carry off the filth and protect the population. In the formation of this tube it of course starts out from the sac and the hard work is encountered at the start, for the bony walls of the alveolus must be penetrated. The gases generated in the decomposition of matter, press with all their expansive force, the absorbents are excited to great activity, and the process of perforating the bone is accomplished with the severest pain that attends the formation of abscess. When once through and into the soft parts, the yielding nature of

the tissue is such that the severity of the pressure ceases, and with it the severity of the pain. Hence, it is commonly observed that by the swelling of the face the pain is relieved. I have been thus particular concerning the process of the formation of abscess for the purpose of getting clearly before the minds of the younger practitioners the abnormal conditions to be removed—the true nature of the disease to be cured.

As we come now to the second part of the subject—treatment—I wish first to answer the question, what is a cure? as it is greatly to be feared that there are mistaken notions on this point. It is no doubt true that many an abscess is supposed to be cured which is not cured. Both patient and practitioner may be deceived. Pain is so commonly an attendant of disease that it frequently happens that the patient will report the disease cured when the swelling has gone and the pain has ended, and sometimes the operator is too willing to believe the statement. Remembering the progressive steps of development of an abscess, and that cure is a retrograde progress, we sometimes come, by treatment, back to the same conditions that were early seen in the development—a condition when the absorbents can dispose of the matter formed, so that the sinus on the gum is closed up. This, too, is a condition calculated to deceive. All that has been accomplished is the reduction of the abscess to a condition of quiet favorable to a chronic state. Though it is no longer in active flow, it is in a condition to break out again as soon as the functions of absorption shall from any slight cause be disturbed. An abscess may be reduced to a hypertrophied or indurated condition of the parts involved, and yet not cured. These deceptive conditions arrived at in the progress of cure are but half-way cures, and are usually the result of half-way treatment by easy and quick methods, or by wholly wrong methods.

A cure of alveolar abscess not only arrests pain and the discharge of pus, but removes all swelling, soreness, looseness, and tenderness of the tooth, restores the normal colour of the gum and prevents the return of these conditions on slight constitutional disturbances.

To accomplish this, the whole abnormal structure of the abscess must be broken down. The whole machinery of pus formation must be demolished and normal tissue be restored. For the disease is not, as some have supposed, functional, but it is structural. Cure is not, therefore, simply removing the cause of irritation and giving free action to normal functions.

I have been astonished more than once, that men in the

profession, of great practical skill and importance, should have adopted the theory as a fundamental axiom in therapeutics, that if you remove the producing cause of disease the inherent power of nature will restore health to the diseased parts—or, as is sometimes said, “The disease will cure itself.” In conformity with this notion, they say concerning alveolar abscess, that if you will remove the dead tissue of the pulp and all foreign putrescent matter from the pulp chamber and from the root canals, and close their openings by an impermeable filling of any sort, nature will take care of the rest—the disease will cure itself.

Within proper limits the application of this principle would be correct practice. In functional disease it may well apply. But abscess is not a functional disease. It is organic and structural. The formation of a sack is an organisation of new tissue, it becomes organised structure with abnormal functions. With a structure and functions the organisation has power of continuance, though the producing cause ceases to exist. It is as truly an organised structure as any bodily excrescence or tumour. ‘Tumours are not gotten rid of by removing the cause.

I was applied to within the past year to remove from the lip of a gentleman a tumour that had been of slow growth for twenty years, caused, as I judged, by smoking a heavy pipe while engaged at his daily labour as a bricklayer. The constant motion of the head and swaying of the bowl of the pipe was a source of irritation. Suppose I had said to the man, “Sir, you must remove the cause and your lip will get well—you must throw away your pipe, and the tumour will go too.” He had virtually removed the cause years before, being compelled by the soreness and pain of the tumour to smoke his pipe from the other corner of his mouth, but the tumour did not depart. I removed it, however, while he continued the use of the pipe as before.

What we need in the treatment of alveolar abscess is a rational method which will take cognisance of its true nature, and carry with it a measure of certainty as to effecting a cure, and not leave both operator and patient in perpetual doubt as to the result.

All methods and means which have been adopted by the profession may be resolved into two; one surgical, the other therapeutical. One operator destroys the sac by mechanical means, cutting and dissecting it away, and another destroys it by caustics, while a third will employ both methods in conjunction. Both methods have proved successful, and both have proved failures. In each case the failures have been from want of thoroughness, except in cases complicated

with other forms of disease. It is conceded that a caustic like carbolic acid, a saturated solution, will destroy the sac containing the pus of an alveolar abscess. The only question pertains to the manner of applying it. It is also conceded that the operation may be performed surgically; the question in this case being, whether the operation shall be performed by cutting through the alveolar wall to the apex of the root, or by extracting the tooth, dissecting the sac from the root and replanting the tooth.

My own experience in the treatment of alveolar abscess for a period of twenty-six years, as it illustrates many successes and failures, may be as profitable to others as it has been to me, in leading to a simple and reasonably certain method of treatment.

My first case was an abscess located on the upper central incisor. I resorted to the usual method of practice—excavated until I reached the pulp chamber, which I swabbed very freely with creasote. Nerve broaches and instruments for entering the roots were not then in general use. This treatment had the effect of relieving the pain, and lessening the discharge of pus and the general inflammatory symptoms. But I found that omitting the treatment for a week would bring a return of the aggravating symptoms. Then I extemporised an instrument to ream out the root and introduce the medicament higher up; but with no better results. I tried the application of counter-irritants to the gum, hoping by this means to stimulate absorption of the pus or bring the disease to the surface, where I could more easily control it. In this I failed. At last I concluded to treat it as I had seen fistula treated, with a seton. I made two parallel vertical incisions through the gum overlying the apex of the root, dissected up the intervening portion of the gum and drew through under it a twisted bit of cotton. This I moved or replaced from time to time, till at length I removed it entirely, and, to my delight, the next time I saw my patient the abscess was gone, and it did not return. With supreme satisfaction, I said to myself: I have now found a sure method for the treatment of alveolar abscess. With my next case I was very confident. I was confident of this—that I knew how to begin and how my beginning would end. The “heroic method” was entered upon with the enthusiasm of “bearding the lion in his den.” I pursued my treatment with the seton till I became satisfied that it would not be successful. I abandoned it. I had read somewhere of somebody cutting through the alveolar walls and applying creasote there at the very seat of the disease. Had I always known just where to find the seat of

the disease, and known also that I had sufficiently mangled the sac to kill it, or that the applied creasote had reached every part of this abnormal tissue to destroy it, I might have found this method a great success—provided my patient would submit to so painful a method. But as it was, the treatment was only occasionally successful.

Next came in use the syringe, forcing medicines, in stimulating or caustic strength, through the root of the tooth, or through the sinus and fistulous opening. But in nine cases out of ten I found my fluid regurgitating around the nozzle of my syringe and none of it entering the sac, but deceiving me all the while with the idea that *probably* enough had entered the sac to accomplish the desired purpose. Better syringes and more effective methods of using them are now employed by those who trust to the syringe in the treatment of this class of cases. But still the fact must remain that the sac must first be emptied of contained pus before any other fluid can enter; and it cannot be thoroughly emptied through one opening. There must be an opening of egress as well as ingress to the sac, to have a condition favorable to certain success. Any method of treatment by caustics that does not provide for first emptying the sac, and also for bringing the caustic with certainty in contact with every portion of the surface of the sac, is faulty, and may often prove a failure.

Having failed, in my early experience, with so many methods, I began to reason about the case thus:—The abscess sac is a living abnormal tissue which must be destroyed. I have at hand pure wood creasote (carbolic acid was not at that time a pharmaceutical preparation), chloride of zinc, and nitrate of silver. Nitrate of silver is objectionable because of its action upon the tooth substance. Chloride of zinc is objectionable because of its being a powerful irritant and too persistent in its escharotic effect, causing very great pain, and endangering surrounding parts. I adopted the use of creasote, pure, or combined in some cases with an equal quantity of tincture of iodine. This must be brought in immediate contact with every part of the sac. I have tried every coaxing method and have failed. I have tried the force of the common syringe, and have failed so often as to feel for ever in doubt of success. I must make a different application of force, such as will bring the caustic in contact with the entire inner surface of the sac. This seemed to me the only rational idea. I resorted to the following simple method, which I have followed ever since. It is this:

I first gain free access to the pulp chamber. If I cannot

get it through the cavity of decay I plug up temporarily this cavity and drill in through the crown. I aim to drill in such a manner that I shall form a tube about the size and style of a tube for setting a pivot tooth. This tube so formed I make the barrel of a syringe. Out of the remainder of the root I form the nozzle of my syringe—requiring only to see that it is free from solid matter and open at the apex. This is so usual a condition of the root of a tooth having abscess, that I test the working of my syringe with water. If I find it free, I proceed with the treatment; if not, I take a jeweler's hair broach, draw the temper to a spring, pass it up the root, and ream out the apical foramen. If the root canal be too tortuous for this operation, after the first or second trial in forcing caustic through, the opening will in almost every case be found free. To put this extemporised syringe into use, my first effort is to empty and thoroughly wash out the abscess sac; for the pus remaining, prevents the entrance of the caustic, and while it bathes the inner surface of the sac, the entrance of the caustic coagulates the pus on the surface and prevents the full action of the caustic. Hence I fill the root with warm water, apply to the opening a bit of soft rubber, whittle a stick of tough wood for a piston, and force the rubber up the tube formed in the tooth as the barrel of my syringe. Thus the water is forced into the sack, and by the same process the pus is forced out through the fistulous opening and the sac itself on the inner surface left clean for the action of the caustic.

The caustic I usually employ is carbolic acid, a saturated solution of the crystal. After applying the rubber dam to protect other parts of the mouth, I force the carbolic acid into the sac in the same manner as I do the water. When I see it making its appearance at the sinus on the gum, or externally on the skin, I am sure that the sac has first been filled, and that its inner coating has been freely bathed with the caustic. In some cases a single thorough treatment of this sort will effect a cure. But in many cases it will require at least three treatments at intervals of two or three days. Then I leave the case for a week or ten days as a test of the cure, closing up the cavity with some temporary stopping.

This method of treatment can be highly commended for its rational simplicity, for its thoroughness in reaching the seat of the disease and accomplishing all that is possible to be accomplished with caustics, and for its ready adaptation to all classes of teeth molars, as well as incisors, in both jaws.

It is not usually necessary to know on which of the roots of a molar the abscess is located. If the caustic used is well

confined within the tooth, and the piston or plunger be well adapted, the force employed is quite certain at the second sitting, if not at the first, to drive the caustic through the abscess on whichever root it is located.

The treatment of alveolar abscess has in the last few years gained considerable attention by the introduction of a new abscess syringe, adapted to performing the operation through the sinus on the gum, or by an artificial perforation of the gum and alveolar wall. The syringe is a great improvement on those before used. But all operating with the syringe through the external opening I consider unphilosophical and uncertain, when the case is one of true abscess as I have described. When complicated with other forms of disease, such as I have before mentioned, necrosis, ulceration, and deposit of sanguinary calculus, it may be an important aid in treatment.

This latter condition named, leads me, in closing, to call your attention to the distinction between ulceration and abscess. The two are widely different. Abscess has a sac; ulceration has no sac. Abscess has a vascular, organised tube, to drain the sac of pus; an ulcerated tooth has no tube-drain. An ulcer is phagedænic; an abscess is not. An abscess is an organised structure; an ulcer is structureless. In the development of abscess new tissue is organised; in the development of an ulcer normal tissue is disorganised and wasted. Being so widely different, it seems strange that the two conditions should be mistaken the one for the other, or more often considered to be the same disease. Ulceration in connection with the root of a tooth attacks the peridentium and the walls of the alveolus, destroys and wastes away these tissues. The wasting of the cementum by ulceration is often supposed to be absorption of the root. All three tissues may not show the phagedænic character of ulceration in the same and every case. It is plain that ulceration requires a different treatment from abscess.

Here let me also call your attention to a peculiar condition sometimes found on ulcerated teeth—a deposit of calculi. Granules of tartar are clustered about the apex of the root, distributed along the route of the discharge of serous matter. I am not aware that the authors of our text books, or writers for any of our journals, have ever given any account of this peculiar deposit which has distinguished it from other calcareous deposits on the teeth. It seems to have been taken for granted that all calculus found in the mouth, and certainly all deposited on the teeth, has its origin in the saliva, and has therefore been called salivary calculus. We need but to ask the question: how does the saliva reach the

apex of the root of a tooth, and in such quantity that in the slow process of such deposit the calculi could be formed?—to see at once that it is impossible. Thus we shall be led to seek some other origin for the deposit. Let it be remembered that all the fluids of the body contain calcareous matter. Hence we have not only salivary calculus, but urinary calculus, biliary calculus, gall calculus, &c. And this is pre-eminently true of the blood. Hence, in the decomposition of blood as in the formation of the serum of an ulcer, the lime salts contained in the liquor sanguinis are freed to seek their affinity, and being in contact with the like mineral composing tooth bone a deposit takes place. Being thus formed from the aqueous portion of the blood, I have called it *sanguinary calculus*, as indicating its true origin.

When such is the condition of a tooth, to make the diagnostic mistake of calling it alveolar abscess, and treating it as alveolar abscess, inevitably results in failure. I have only to add, in one closing line, mark well the distinctions I have attempted to make.—*Missouri Dental Journal*.

Hospital Reports and Case-Book.

AN EPILEPTIC SEIZURE FOLLOWING THE ADMINISTRATION OF NITROUS OXIDE GAS AND ÆTHER.

By G. H. CROWTHER, L.D.S.R.C.S.I.

IN December, 1880, R. B—, aged 25, mineral agent and land surveyor, of dark complexion, medium height, and well built, apparently in good health, came to my surgery for the purpose of having a superior molar tooth on the right side extracted under the influence of nitrous oxide gas and ether combined. As usual, before administering it, I auscultated him for any pulmonary or cardiac defects which might be present, but with negative results. He had been under the influence of this agent on two previous occasions within fourteen months, without ill effects; on being questioned as to his previous health, he said he had never suffered from a day's illness in his life, and, excepting ordinary colds, had enjoyed very good health indeed. I asked him how long it was since he last had anything to eat, and he said the only thing he had taken within the last three or four hours was a glass of brandy and water; therefore everything appeared

favorable for the administration of the anæsthetic. With the assistance of my son, I administered, through a Pedley's apparatus, gas (alone) for forty seconds, and afterwards gas and ether combined for a further period of eighty seconds, or two minutes in all. At the commencement of inhalation there was no excitement, respiration was slow but free, and at the rate of sixteen per minute, pulse 68. Just before the inhalation was completed the patient was breathing stertorously, and completely unconscious, muscles flaccid, and there was complete abolition of sensation. The operation was entirely successful. When he returned to consciousness, he was very pleased it was over and thanked me. Almost immediately afterwards great excitement followed, he uttered a piercing cry, and would have rolled off the couch on which he was lying had he not been prevented; there was a cadaverous pallor of countenance, and then the face turned livid, and was drawn to one side; the eyes were fixed and staring, the pupils dilated and insensible to light. His hands were firmly clenched, and there was general rigidity of all the muscles of the body; the pulse was feeble, skin cold and clammy, foam issued from the mouth, and the tongue protruded; altogether it was a typical case of epilepsy. After remaining in this state a little over twelve minutes he gradually recovered, and when completely himself again was not aware of what had happened, and said he did not feel any the worse excepting being fatigued, and having a little headache; in a short time he was able to walk home unaided. There was no history of syphilis or hereditary predisposition to epilepsy. I cannot recollect having seen published a similar case under the same circumstances. I myself have had over nine thousand cases of extraction under the influence of nitrous oxide and ether combined, and amongst a mixed class of patients varying in age, but never before experienced the same thing that happened in this case. I also bring it forward because it seems rather to uphold the theory of anæsthetics producing epilepsy.

1 Bond Street, St. John's, Wakefield;
March, 1881.

QUARTERLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF EXETER.

FROM JANUARY 1ST TO MARCH 31ST, 1881.

Extractions	{ Children under 14.....	235
	{ Adults	420
	{ Under Nitrous Oxide and Ether.....	30
Stoppings	{ With Foil	37
	{ „ Plastic Material	148
Miscellaneous	(Irregularities of the Teeth, Scaling, &c.).....	154
Total.....		1024

HENRY B. MASON,
Hon. Sec.

British Journal of Dental Science.

LONDON, APRIL 15, 1881.

THE fact that a question which has kept the Odontological Society in a state of intermittent agitation for some years past is at last decided, ought to be a subject for hearty congratulations on the part of all who wish well to the Society. And yet, earnestly desirous as we are for its peace and prosperity, we have serious misgivings as to whether the settlement just arrived at is, at this particular juncture, really a matter for congratulation.

The Society has decided that for the future no one shall be eligible for its membership unless he is a “licentiate in Dental surgery, or a qualified practitioner of medicine or surgery, or possesses such a diploma or degree as, in the opinion of the Council, shall qualify him for the membership of the Society.” Some of the arguments which were advanced in favour of the resolution were obviously weak; such, for instance, as the assertion that it would raise the tone of the Society and raise it in the estimation of other learned societies, &c. The tone of a society is maintained by the position and attain-

ments of those who are actually admitted to membership ; the position of those who are outside its pale, even though they may be potentially eligible as members, can affect it but slightly. Again, an influential member of the Society recently expressed himself as follows :—" The opinion seems to be very general that as now none can be registered as Dentists but those who have been properly educated for the profession and have a diploma guaranteeing that fact, that the time has arrived when the admission to our Society also should be restricted to those who hold diplomas certifying either to their efficiency as Dentists or their scientific education, and are thus capable of contributing to our knowledge on subjects more or less relating to our specialty." The inference to be drawn from this is that no one who is not a licentiate is capable of contributing to our knowledge on subjects relating to our specialty, which we believe to be rather too sweeping a statement. The stamping of gold does not make it intrinsically more valuable, though it does enable its value to be more easily recognised ; and amongst our undiplomaed practitioners there is, together with a considerable quantity of base metal, undoubtedly a certain amount of unstamped gold.

The argument to which we attach most weight is that which was brought forward by Mr. Coleman, viz. that the resolution only gave a due recognition to the value of the Dental diploma. We willingly admit that the value of the Dental diploma should be recognised in every way possible, and that, put on that ground, it is difficult to oppose the resolution. But is it either necessary or expedient for the licentiate to exact this amount of recognition ? A lord does not forfeit his nobility by not always insisting upon his strict rights of precedence ; on the contrary, he is generally the more honoured on this account. And the same may be said of the licentiate.

We think that just now anything that tends to divide the profession into licentiates and non-licentiates is bad. We want a sifting of the wheat from the tares, a separation of the sheep from the goats. Those practitioners who are willing to conduct themselves honestly and respectably should be

encouraged, whilst those who shamelessly and selfishly dishonour the good name of the profession by which they live should be scouted and blackballed.

As regards the Society, we believe the new law was scarcely required. Those who will take the trouble to examine the statistics relating to the membership of the Society which Mr. Parkinson appends to the treasurer's reports, will see that during the last few years the proportion of unqualified to qualified members has rapidly decreased. Whereas, only some four or five years ago, the unqualified members were almost as numerous as the licentiates, they now form but a fifth part of the Society; and for a long time past it has been a very rare occurrence for a non-licentiate to be elected a member. It is evident therefore that the necessity for the law, apart from sentimental considerations, was but slight. The fact that a candidate was without a diploma should certainly have been a sufficient reason for the exercise of extra strictness on the part of the Council in inquiring into his position and antecedents, and in this way there would have been no difficulty in keeping the Society select without actually branding all unqualified practitioners as pariahs and outcasts.

That some of the members present at the meeting were of this opinion was evident from the fact that out of forty-three members present only thirty-two voted in favour of the resolution, being only four in excess of the two-thirds which was required to carry the measure. We admit that there is much to be said in its favour from the licentiates' point of view, but we could have wished that these had been magnanimous enough to forego their strict rights and their evident opportunity.

In conclusion we would quote with approval a sentence from a letter written by Mr. W. A. Hunt, of Yeovil, which was read at the meeting. "We (licentiates) must do more than *demand* social esteem, we must *deserve* it; and instead of expecting honour to flow from the possession of a diploma let men rather endeavour to grace and give lustre to the diploma they may hold."

Literary Notices and Selections.

THE DENTAL REGISTRATION CLAUSES.

SIR,—Mr. Tomes appears, in his letter of March 5th, to entirely fail to make out his case against the Medical Council; in fact, from his own showing, it is perfectly clear that the Medical Council, in the first instance, under Dr. Rolleston's scheme of examination rules, desired not to be called upon to originate a scheme; and that, under Dr. Quain's subsequent motion, they again desired that the Bill should be brought into conformity with the Lord President's Bill, which, as you have already quoted, contained a clause enabling the Dentists' Association, or any person, to submit a scheme for examination, licensing, and registration; and this view they adhered to after the communication of Mr. Jenkyns's letters on July 1st, since Dr. Quain's motion was carried on July 4th. Mr. Tomes may, if he please, of course, repudiate all responsibility for the acts of Mr. Jenkyns; but it is generally understood that a parliamentary draftsman only carries out instructions given to him; and it is perfectly clear that, if Mr. Tomes and Sir John Lubbock had any responsibility in respect to the Bill—and I do not understand that they disavow it—they are the persons responsible, conjointly with the Government, for the defects in the Act now complained of. These defects were foreseen by some of the members of the Medical Council, and would not have occurred had the resolutions on the subject passed by the Medical Council on July 4th been respected by Mr. Tomes and Sir John Lubbock, and carried out by Mr. Jenkyns. The Bill was spoiled by being prematurely hurried through the House of Lords; and, in presence of the documents here quoted by Mr. Tomes, it is perfectly futile to blame the General Medical Council in a matter in which they are obviously quite blameless. They are responsible for the introduction of the inefficient clauses of which complaint is now made. The Medical Council, through its President, Dr. Acland, might possibly at the last moment have interposed a veto, on the ground that the Bill was not now drafted in accordance with their resolutions or their wishes; but it hardly lies in Mr. Tomes's mouth to complain that they did not stop him and Mr. Jenkyns from having their own wilful way. The profession may complain, and the Dentists; but Mr. Tomes and his allies are the offenders; and the Medical

Council is, on his own showing, only blameable for not having at the last moment interfered to stop the mischief which he brewed with the Government aid.—I am, sir, yours faithfully, DENS SAPIENTIÆ.

SIR,—As Mr. Tomes is quite able to take care of himself, I will not presume to enter into the matter at issue between him and your correspondent "Dens Sapientiæ." I would, however, with your permission, draw attention to an assertion made in the opening part of his letter which appeared in yours of April 2nd. The permissive scheme of the Government is referred to in the following terms. "The Lord President's Bill contained a clause enabling the Dentists' Association, or any person to submit a scheme for examination," &c. At page 15, Minutes of Medical Council, April 1878, the clause stands thus:

"The General Medical Council may, if they think fit, submit to the Privy Council a scheme for the examination," &c.

How, then, can it be said that any person is enabled to submit a scheme? I am fully aware that any person might submit a scheme to you as the Editor of an important and powerful journal, and that you might, if you thought proper, insert it in your pages; but as the scheme has to be submitted to the Privy Council by the Medical Council, such sophistry is hardly worth a thought, and yet it seems to me to be the only ground on which such a misleading statement could be made.

The allusion to the Dentists' Association is even more remarkable, inasmuch as at the time when the terms of the Government were under consideration, the formation of a Dentists' Association was not even contemplated.—Yours obediently, JAMES SMITH TURNER, Honorary Secretary, British Dental Association.—*Brit. Med. Journ.*

GELSEMINUM IN FACIAL NEURALGIA.

IN reference to the use of gelseminum in facial neuralgia and neuralgia arising from Dental caries, I have used Richardson's tinctura gelsemini in fifteen-minim doses, repeated every three or four hours until relief is obtained. Three doses generally suffice. When tincture of gelseminum has failed, I have generally used a pill containing gelseminum, croton-chloral-hydrate, and monobromide of camphor. This

pill Messrs. Richardson keep pearl-coated as Form. 598. This latter I have found of great value also in "cold in the head," with or without neuralgia. A recent case I had was one of dropsy of the antrum. The patient had previously been operated on by Sir J. Paget some years ago, but is liable on catching cold, when the mucous membrane swells up, to have retention of the fluid. On this occasion, the fluid had evidently managed to find its way also up the lachrymal canal into the cellular tissue on the face, which was very swollen and infiltrated with fluid. The supra-orbital nerve, as it emerges on the forehead, was particularly victimised by the infiltration, which, by increasing and decreasing, caused paroxysms of the most intense neuralgia, due to pressure. After trying quinine, arsenic, iron, morphia, and the pills above-mentioned, "Tonga" was used, and the effect was almost instantaneous.—I am, &c., KENNETH W. MILLICAN, B.A., L.R.C.P. Ed.—*Brit. Med. Journ.*

DEATH UNDER ETHER.

A DEATH from ether is reported at Jefferson College Hospital, Philadelphia. The patient, a woman aged 26, was a patient of Dr. J. R. Levis, who was to operate upon her for fibrous ankylosis of the hip. She had taken ether previously without ill effects, and her viscera were all healthy. She took between two and three ounces of ether, and the operation was safely performed. She did not rally from the anæsthetic, however, and, in spite of stimulants, an hour and a half after etherisation commenced, she died. Post mortem examination revealed nothing abnormal. Shock may have had something to do with the fatal result.—*Brit. Med. Journ.*

POISONING BY CHLOROFORM.

THE recently issued number of the 'Nordiskt Mediciniskt Arkiv' contains a report by Dr. Johannes Mygge, of Copenhagen, of a fatal case of poisoning by chloroform. The patient was a man of intemperate habits, who had, six days before his admission into hospital, drunk nearly forty grammes (more than ten drachms) of pure chloroform. He

appears to have rapidly fallen into a state of narcotism, from which he revived four hours later, without the use of remedies. Immediately after this, he several times vomited matter having a strong odour of chloroform; after this, he had watery and slimy stools, mixed with much blood; and, from the night after the catastrophe, he expectorated large quantities of viscous, frothy, and sanguineous matter. On his admission, hepatisation of the lower lobe of the right lung was found; there was copious expectoration of sanguineous and frothy matter; the mouth exhaled a very foetid odour; he had frequent vomitings of bilious matter; his evacuations were fluid and viscous, but not mixed with blood; and he had pain in the epigastrium; sleep was disturbed. He gradually sank, and, after having had slight convulsions, died two days after admission to hospital. The necropsy showed grey hepatisation of the lower lobe, and congestion of the other parts, of the right lung, and recent fibrinous adhesions over the whole surface. The mucous membrane of the stomach, over a surface as large as a child's hand, close to the large *cul-de-sac*, was reduced to fibres, and partially detached; and a more limited portion of the anterior wall of the organ was destroyed, with the exception of the serous and subserous membranes. The upper part of the jejunum, for the space of one and a half metres (nearly five feet), presented numerous ulcers, varying in size from a pea to a bean; they were irregular, greyish, partially arranged in transverse lines, and tinged here and there with bile. Nothing of importance was found elsewhere. Dr. Mygge gives a table of sixteen other cases of poisoning by the drinking of chloroform, which have been reported in medical journals, and refers to others. His statistics, however, are incomplete, as the table is only brought down to 1872. He remarks that congestion of the lung has been found in almost every case in which a necropsy has been made; and that in one of the fatal cases there was an expectoration of sanguineous viscous matter similar to that which occurred in this case. As regards the digestive canal, the symptoms observed have been similar in nearly all the cases hitherto described, but less intense than in the present case; and in one case only besides that of Dr. Mygge was any destruction of tissue found.—*Brit. Med. Journ.*

FASHION IN DEFORMITY.

THE teeth, although allowed by the greater part of the world to retain their natural beauty and usefulness of form,

still offer a field for artificial alterations according to fashion, which has been made use of principally in two distinct regions of the world and by two distinct races. It is, of course, only the front teeth, and mainly the upper incisors, that are available for this purpose. Among various tribes of negroes of Equatorial Africa different fashions of modifying the natural form of these teeth prevail, specimens of which may be found in any large collection of crania of these people. One of the simplest consists of chipping and filing away a large triangular piece from the lower and inner edge of each of the central incisors, so that a gap is produced in the middle of the row in front. Another fashion is to shape all the incisors into sharp points, by chipping off the corners, giving a very formidable crocodilian appearance to the jaws; and another is to file out either a single or a double notch in the cutting edge of each tooth, producing a serrated border to the whole series.

The Malays, however, excel the Africans, both in the universality and in the fantastic variety of their supposed improvements upon nature. While the natural whiteness of the surface of these organs is always admired by us, and by most people, the Malays take the greatest pains to stain their teeth black, which they consider greatly adds to their beauty. White teeth are looked upon with perfect disgust by the Dyaks of the neighbourhood of Sarawak. In addition to staining the teeth, filing the surface in some way or other is almost always resorted to. The early universal custom in Java is to remove the enamel from the front surface of the incisors, and often the canine teeth, hollowing out the surface, sometimes, but not often, so deeply as to penetrate the pulp cavity. The cutting edges are also worn down to a level line with pumice-stone. Another, and less common, though more elaborate fashion is to point the teeth, and file out notches from the anterior surface of each side of the upper part of the crown, so as to leave a lozenge-shaped piece of enamel untouched; as this receives the black stain less strongly than the parts from which the surface is removed, an ornamental pattern is produced. In Borneo a still more elaborate process is adopted; the front surface of each of the teeth is drilled near the centre with a small round hole, and into this a plug of brass with a round or star-shaped knob is fixed. This is always kept bright and polished by the action of the lip over it, and is supposed to give a highly attractive appearance when the teeth are displayed.

Perhaps the strange custom, so frequently adopted by the natives of Australia, and of many islands of the Pacific, of knocking out one or more of the front teeth, might be

mentioned here, but it is usually associated with some other idea than ornament or even mere fashion. In the former case it constitutes part of the rites by which the youth are initiated into manhood, and in the Sandwich Islands it is performed as a propitiatory sacrifice to the spirits of the dead.

The projection forward of the front upper teeth, which we think unbecoming, is admired by some races, and among the negro women of Senegal it is increased by artificial means employed in childhood.—PROF. FLOWER, in *Popular Science Review*.

HARD HIT.

WHEN a tooth is filled the work of the Dentist is not all done; a word to the patient must be said in regard to that work, and his or her duty in caring for it, for the result of Dental operations depends as much upon the patient, I think, as upon the operator.

I have been in the habit of demonstrating to my patients, by means of the microscope, how imperfectly they cleanse their teeth.

I had not been in practice more than two or three years before I felt with great force the importance of this subject.

A young man came in to have his teeth cleansed who had no idea of cleanliness, who never used a tooth-pick, nor even rinsed out his mouth. He had noticed a set of teeth that I had cleansed, and thus his attention had been called to the matter. I felt that by performing that operation I should be throwing away my time and his, and that, eventually, he would lose his teeth. I thought I could do him a better service by saying something that he would never forget—that would shock him and arouse his pride. I said, "Young man, my friends all think I am a very kind man, and I mean to be. Now, I have many patients who are very particular, who want my fingers to smell clean and sweet, and so I have to wash and scrub them after I handle a patient's mouth. I do not keep a cow, because I might be called upon to milk her, and if I did it, it would take me too long to get rid of the bad odour. If I cleansed your teeth, it would take too much of my time to get my hands in proper condition after it; and, although I am said to be a good-hearted man, I do not pretend to be any better than God Almighty, who is said to help those who help themselves. Let me see that you have some idea of cleanliness

about your mouth, and if there is anything you can't do, come to me and I will help you out."

I did not know how deeply I had struck. The young man got up, and in a very modest way begged my pardon, saying he did not mean anything out of the way, and bowed himself out. I said, "You are all right, except you are all wrong in not taking proper care of your mouth. Go to work, and do not forget what I have said." "Oh, no," he said, "I shall not forget it." I did not see him again for twenty-five years. One day, at Newton, a man stepped up to me and said, "Would you like to look at a set of teeth?" I said, "I would; if you have a set you would like to have looked at I will see them if you will come to my office."

He replied, "It is not worth while to do that," and opening his mouth said, "Just look in here." The crowd gathered around, curious to know what was the trouble. I looked, and saw the most beautiful set of teeth I had ever seen—teeth perfect in form, not a discoloured one in the whole set, and the gums perfectly healthy. I said to him, "My dear sir, I am *very* much obliged to you. I did not suppose there was a person in the world that had such a set of teeth as that. They are a credit to your Dentist." He said, "I have not got any Dentist." "Then," said I, "they are all the more credit to you." He replied, "You may well say that. I take credit for that job, and I feel proud of it. Look here: you don't think it would make your fingers stink to put them in that mouth, do you?" I said, "Oh, no; what do you mean?" He asked, "Don't you know me?" I said, "I don't know that I ever saw you before." He replied, "I never shall forget you. I went into your office twenty-five years ago to get my teeth cleaned, and that is the way you met me." And then he repeated what I had said, recalling the facts to my memory.

The point I wish to make is, that when patients come to me with what they call imperfect work I say to them:—"Acids are the cause of this; your mouth is in an acid condition; the gums show it; the mucous surfaces between the teeth are dissolving away by the acid. How do you live, and on what do you live? Are you not ministering too much to your tastes?—eating pastry and a thousand and one things that you should not?"

I say, no matter how good a filling may be, if the patient does not take care of it, it is liable to fail. A poor filling will do better service with care on the patient's part than will a good filling without care.—*Transactions of American Dental Association.*

PAROTID ABSCESS CAUSED BY A FRAGMENT OF HAY.

At the beginning of last October a healthy young man consulted me about an enlargement of his right parotid gland. The swelling was not very tender, but caused very great discomfort in mastication. I prescribed what I considered suitable remedies, and saw him occasionally. Weeks passed away, but the swelling and discomfort did not diminish; and about Christmas, finding that he had two decayed and tender molar teeth, I advised him to consult a Dentist.

At the end of February my patient came back to me. He had had both his teeth extracted, but his parotid gland was bigger than ever. The tumour had been formerly of the natural colour of the skin, but it was now covered with an inflammatory blush, and seemed to point in one particular spot. A deep puncture was made with a sharp narrow knife, and matter followed the incision. The wound continued to discharge for ten days, and at the end of that time a piece of hay somewhat more than one third of an inch long escaped, the wound closed and the swelling subsided. The patient was under treatment altogether just six months.

The explanation of the case now seems simple enough. In the early part of September he went into the country for his holiday, and he distinctly remembered chewing some hay while he was watching a cow being drenched. A fragment of the hay became lodged between the gum and the cheek, but by working his jaw about he thought he dislodged and swallowed it. For several days afterwards he had considerable pain in eating, but he attributed this to having sprained the muscles of the jaw in his efforts to dislodge his enemy. A month afterwards the swelling of the parotid began. There can be no doubt, I think, that the little fragment of hay passed into Stenson's duct when it was thought to have been swallowed, and gradually worked its way up to the salivary gland in front of the ear where it ultimately made its escape.—EDWARD E. MEERES, M.D., Plymouth.—*Brit. Med. Journ.*

ANÆSTHESIA BY CHLORAL.

M. BOUCHUT publishes, in the 'Paris Médical,' a case of thoracentesis, in a child six years and a half old, with anæsthesia by chloral. M. Bouchut gives chloral in doses of from two to three grammes, according to the age of the patient, and in a single dose. He asserts that it is a perfect anæsthetic, without any disagreeable result; and that he has administered it in this way in more than 10,000 cases. Anæsthesia by chloral renders operations very easy in children, who move about, struggle, and incline the vertebral column towards the side which is to be operated on. The anæsthetic sleep overcomes this resistance, sometimes so difficult to conquer, especially in children on whom the same operation has been performed more than once. When the little patient awakes, at the end of three hours, he is ignorant of what has been done to him, and finds himself relieved without having experienced any unpleasant sensations.—*Brit. Med. Journ.*

SYPHILITIC INFECTION IN DENTISTRY.

A CASE is related by Dulles ('Memorabilien,' 1879, quoted in the 'Annales de Dermatologie et de Syphiligraphie,' vol. i, No. 4, new series), in which a chancre of the lower lip was produced by the medium of a Dentist's instruments—an illustration of the necessity of a precaution doubtless not often omitted, namely, to cleanse all instruments used in operations on the teeth in a 5 per cent. solution of carbolic acid, or in absolute alcohol.—*Med. Times and Gaz.*

[This is no doubt the case mentioned by us in our issue of January 15th.—Ed. B. J. D. S.]

THE 'DENTISTS' REGISTER' FOR 1881.

THE second issue of the 'Dentists' Register' was published on the 1st inst. As the result of the memorable decision of the Medical Council, the differences between this and the issue of 1879 are not so great as some of our readers expected or hoped for, still, such as they are, they are significant. We find, for instance, that there is a slight decrease in the total number of registered Dental practitioners, viz. from 5289 to 5269, whilst there is a more decided decrease in the number

of the *bonâ fide* unqualified practitioners, from 4806 to 4698. The proportion of unqualified practitioners to the total number registered has decreased more than $1\frac{1}{2}$ per cent., viz. from 90·87 to 89·26; the numbers of the licentiates has, of course, increased in the same proportion, viz. from 483 to 565. Considering the short time that has elapsed, just eighteen months, since the last edition was published, these figures must be considered satisfactory; after the lapse of a few years we may expect to find the changes thus indicated proceeding more rapidly.

As regards the work itself, we may add that it contains a great deal of useful information respecting the Dentist Act and its working, making it something more than a mere official record of names, and some interesting statistics, for all of which we have to thank the public spirit and ungrudging energy of the Registrar.

PETERMANN'S DENTAL ALMANACK.

THIS so-called "Almanack" is a very neat little directory, containing the names, addresses, &c., of all the Dentists practising in the German kingdom and in Austria-Hungary, together with a great deal of information respecting the German Dental colleges, and other matters relating to the profession. Thus we are told that there are practising in Germany 506 Dentists, and in Austria-Hungary 144. Of towns whose population exceeds 100,000, Frankfort-on-Main contains the largest proportion of Dentists, viz. 16 to 127,000 inhabitants; Berlin, with 1,120,000 inhabitants, supports 63 practitioners, and Vienna, with 1,004,000 has 57. There are Dental professorships at Berlin, Breslau, Buda Pest, Graz, Halle, Kiel, Cracow, and Vienna.

Amongst other matters of professional interest we find brief notes of all the Dental journals published throughout the world, arranged in order of seniority. We find this Journal placed third in the list, which is headed by the 'American Dental Register,' now in the thirty-fifth year of its existence; l'Art Dentaire, aged twenty-five years, comes next, whilst the 'Dental Cosmos,' a year younger than the 'Brit. Journ. of Dent. Science,' takes the fourth place. There are twenty-five titles on the list, of which no less than fifteen are those of journals which are published in the English language.

We hope that one of these days we may be able to boast of a similar handy and useful Dental Annual in England.

Dental News and Critical Reports.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, APRIL 4TH, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

THE Ordinary Monthly Meeting, which took place on the 4th inst., was preceded by a Special General Meeting, of which due notice had been given, convened for the purpose of considering the following resolutions which had been recommended for adoption by the Council :

1. "That on and after November 1st, 1882, candidates for the resident, non-resident, and corresponding Membership of the Society, shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery, and are also licentiates in Dental Surgery, or qualified practitioners of medicine or surgery, or possess such a diploma or degree as in the opinion of the Council shall qualify them for the Membership of the Society." And

2. "That wherever the words Dentist or Dentistry occur in the Bye-laws, the words Dental surgeon or Dental surgery shall be substituted."

These resolutions were formally submitted to the Society by Mr. Thos. A. Rogers, the President, and Dr. Walker, one of the Vice-Presidents, acting on behalf of the Council. The President, speaking of the first resolution, remarked that ever since 1863 similar propositions had from time to time been brought before the Council, and in 1865 such a resolution had actually been recommended by the Council at the Annual General Meeting, but was not adopted; and it had been revived on several occasions since.

The resolution now submitted for the approval of the Society had been under the consideration of the Council since November. It would be seen that it gave due notice of the date of the proposed change, sufficient to enable any member of the profession who did not hold a diploma, but who was now eligible for membership, to offer himself as a candidate. It affirmed that the license in Dental surgery was the chief qualification for the membership of a Dental society, it fully recognised the close connection between general and Dental surgery, and it also invited the co-operation of all who were interested in the progress of Dental

surgery. A certain amount of discretion was necessarily left to the Council with regard to the recognition of various degrees and diplomas, English and foreign, as it would be very difficult to draw a hard and fast line.

Dr. WALKER said that as the Dental profession was now a body recognised by law, it was thought by the Council to be only right, and in keeping with this position that the Dental Society of London should be composed of diplomatised men. At the same time its arms should be opened as widely as possible, so as to include all who had given evidence of scientific attainments and who were interested in the progress of Dental surgery. The terms of the resolution had accordingly been made so comprehensive that none could be excluded who had any claim to be recognised by the Society. He believed that the resolution would, if adopted, do much to raise the tone of the Society, and that it would also raise the Society in the estimation of its sister societies, and in that of the other scientific bodies generally. He hoped therefore that it would be carried unanimously.

Mr. COLEMAN said he supported the resolution on the ground of justice to the Dental licentiates; he thought that the Society had not paid them the honour it should. To place qualified and unqualified practitioners on an apparent equality was not giving a due recognition to the value of the Dental diploma.

After a few remarks from Mr. JAS. PARKINSON, who pointed out that there were already in the Society 311 qualified members to sixty unqualified, or in the proportion of four to one, the resolution was put to the meeting by the President and carried without opposition. The second resolution was then put to the vote and at once agreed to.

The ordinary business of the meeting was then proceeded with.

Mr. HENRY SEWILL related a case in which paralysis of the parts supplied by the left inferior dental nerve followed the extraction of the lower wisdom tooth on that side. The tooth, which was extracted with considerable difficulty, was found to have large, widely separated roots, the extremities of which were curved backwards. The patient did not discover the loss of sensation in the parts supplied by the nerve until she reached home; there was complete anæsthesia of the skin of the lip as far as the middle line in front, and all the teeth on the left side up to the right central incisor were completely insensitve. Remembering the favorable termination of some similar cases which had been brought forward some years ago by Mr. Luther Holden he had ventured to give a favorable prognosis.

Mr. BROWNE-MASON, of Exeter, said he had met with a precisely similar case in his own practice; sensation returned in about a month.

Mr. CHARLES TOMES said he had ascertained by removing the outer alveolar plate of the lower jaw in a number of cases, that when the alveolar process was sufficiently deep the roots of the teeth grew straight, but that when there was not sufficient room they were deflected backwards as soon as they came in contact with the roof of the inferior dental canal. The fact, then, that the roots were curved showed that they had been in close proximity to the nerve, and it was not surprising that this should be occasionally injured in the operation of extraction.

Mr. RYMER exhibited a plate, made of dental alloy, which had been swallowed during sleep by a man residing in Croydon. He was suddenly awoke with a feeling of imminent suffocation, and after some unsuccessful efforts had been made to remove the plate, this was accomplished by Mr. Horsley, one of the surgeons to the Croydon General Hospital, by means of a pair of long curved forceps. The plate had been impacted at the lower part of the pharynx just behind the larynx, and at the time of its removal the patient was suffering from urgent dyspnœa, constant cough, with bloody expectoration, and was altogether in a very critical state.

Mr. GADDES showed, for Mr. Kekwick, of Carlisle, a denture which had remained impacted for ten hours in the pharynx of a woman, aged 55, without giving rise to any very urgent symptoms. A surgeon was then called in, and he succeeded in extracting it.

Mr. ROBERT WOODHOUSE read notes of a case in which a large sequestrum, consisting of nearly the whole of the right side of the lower jaw, had been removed from a child five years old. She had made a good recovery, the bone having been completely restored, but all the molar teeth on that side were lost. The case was reported by Mr. R. M. Theobald, of Blackheath.

Mr. ACKERY exhibited teeth from two patients who were the subjects of congenital syphilis, and related some particulars of the cases. In both the left upper central was distinctly notched, whilst the right central was perfectly well formed.

Mr. MORTON SMALE showed under the microscope some sections of a tooth which appeared to have become united to its alveolus by bony ankylosis. In removing the tooth, a left upper canine, a large piece of the alveolus came away with it and could not be separated. The sections had been

sawn and then filed very roughly, but the bone still adhered to the tooth, and Mr. Smale thought that there was evidence of true bony union, at all events in places.

Mr. GADDES said the case reminded him of one precisely similar which had occurred to himself. The tooth came away with a part of the alveolus so firmly attached that he felt sure there must be bony ankylosis. But on making a section, *and staining it*, the fibrous tissue separating the bone from the tooth was made very apparent, showing that there was no true bony union after all.

The SECRETARY having handed round some interesting specimens which had been sent up by Mr. George Brunton, of Leeds,

The President called upon Mr. STOCKEN to read his paper "On the Value of certain remedies used in the Constitutional Treatment of Inflammatory Conditions of the Vascular Tooth Structures and of Neuralgia arising therefrom."

The remedies to which Dr. Stocken specially directed attention were chloride of ammonium, sulphide of calcium, and gelseminum. He said he had selected these because the knowledge of their action was not so general as that of many other agents. He gave a full description of the therapeutic effects of these drugs, indicating the class of cases in which each would be likely to be most serviceable. His conclusion was that in simple neuralgia of the fifth pair, gelseminum, either with or without aconite, would effect a cure, or at least give considerable relief. If the pain was due to congestion or inflammation either of the pulp or periosteum, he would prescribe also chloride of ammonium. In chronic periostitis, with suppuration, sulphide of calcium gives results which are in the highest degree satisfactory, cutting short the attacks in a most remarkable manner.

The PRESIDENT expressed the great satisfaction he had felt in listening to Mr. Stocken's paper. He had long been of opinion that the Dental surgeon should direct more attention to the *constitutional* treatment of the teeth and parts in close relation to them than was generally the case at present. In order to promote a knowledge of the value of constitutional remedies in Dental practice, he should be glad to see a chair of pharmacology attached to every Dental school.

Mr. HUTCHINSON said that, after what had just fallen from the President, he felt some hesitation in expressing his own opinion. He had noticed that in publishing accounts of cases, Dental surgeons were getting more and more into the habit of stating what constitutional remedies they had used, and he thought that this was a mistake. The Dental

surgeon should of course have a knowledge of the various constitutional states and of the remedies which were suitable for each, but he did not think that he ought to carry this knowledge into actual practice. He thought that in a case where constitutional treatment appeared to be desirable, the Dental surgeon should ascertain who was the patient's ordinary medical attendant, and then, if necessary, he should write to him, giving his ideas as to the treatment which he thought would be beneficial. He believed that the practice now gaining ground would, if persisted in, lead to strained relations between Dental practitioners and the general body of the medical profession. In London the ill effects might not be readily apparent, but in the country it could not fail to lead to serious consequences.

The discussion of Mr. Stocken's paper was taken up by Messrs Coleman, Oakley Coles, Gaddes, Arthur Underwood, &c., after which the President replied that he certainly could not agree with Mr. Hutchinson in thinking that the Dental surgeon should confine himself strictly to local treatment, and should leave everything else to the discretion of the medical attendant. At the same time, he should be the last to recommend Dental practitioners to undertake the constitutional treatment of patients except in cases where this had a direct influence on the progress of the local disease. It was difficult to define the exact border line between medical and Dental practice, but he thought that so long as there was any prospect of saving a tooth the Dental surgeon was justified in using any means at his disposal, whether constitutional or local, with this object.

After a brief reply from Mr. Stocken, the President adjourned the meeting.

At the next meeting, which will take place on the 2nd prox., Mr. Arthur Kinsey, Principal of the Ealing Training College for Teachers of the Deaf, will read a paper "On the System of Teaching Deaf-mutes to Speak by the German Lip Method."

Mr. Sewill will open a discussion on "Is the Chemical Theory of Caries Proved?" Casual communications will be made by Messrs Sewill, Brindley, Hilditch Harding, &c.

F. CANTON,	} <i>Hon. Secs.</i>
T. F. KEN UNDERWOOD,	

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON.

ORDINARY MEETING, HELD 14TH MARCH, 1881.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President,
in the Chair.

THE minutes of the previous meeting were read and confirmed.

MR. W. HARRISON showed an interesting case, which had come under his notice at the hospital, of an osseous tumour in the left palate.

MR. J. ACKERY, M.R.C.S., L.D.S., also showed two cases of syphilitic centrals, in each of which only one of the teeth had the characteristic notch. One such case had been previously recorded.

MR. R. B. TURNER then read a paper on "Anæsthetics."

MR. PRESIDENT AND GENTLEMEN,—The subject I propose to lay before you this evening is one which I think requires no recommendation, as it is and always must be our first care to spare the patients who place themselves in our hands as much pain as possible. The prevention of pain in surgical operations has been a desideratum to surgeons as well as patients from the earliest ages. The first endeavour to produce anæsthesia by the inhalation of vapours was made in the thirteenth century by Theodoric, who recommended that a "Spongia somnifera," impregnated with spirituous extracts of various narcotic substances, should be held to the nostrils till sleep was induced; and that after the operation the patient should be roused by the use of vinegar or fenugreek. The compression of the nerves of the limb—excessive venesection—or mesmerism, were tried as means of inducing anæsthesia by Moore, Wardrop, Esdaile, and others, but were found either inefficient or dangerous.

The employment of anæsthetics in surgery is undoubtedly one of the greatest boons ever conferred upon mankind, and to the Americans is due the honour of having established the practice.

An anæsthetic, as the derivation of the word implies, is a substance which has the power of causing absence or loss of sensation, and consequently of producing insensibility to pain. Speaking generally, the progress of anæsthetic science has been marked by two modes of inducing insensibility to pain:—First, by so acting upon the entire nervous system as to produce total unconsciousness or "general anæsthesia;"

secondly, by topical applications to the part to be operated upon, or "local anæsthesia." The former may be produced by the inhalation of the vapour of chloroform, ether, nitrous oxide, &c.; the latter by the application of a freezing mixture, or by the rapid evaporation of very pure ether applied to the part in the form of a spray.

The first serious attempt to produce insensibility to pain during surgical operations was due to the accidental discovery of the wonderful effects of nitrous oxide, which led Sir Humphry Davy and his friends to form hopes that it might prove effectual; but the experiments which were made at that time did not turn out satisfactorily, so the idea was abandoned until 1844, when Horace Wells inhaled nitrous oxide gas with the effect of inducing insensibility during the extraction of a tooth. The success attendant on this experiment led him to try it on several of his patients, but after repeated failures he gave up the attempt. In 1846 Dr. Morton, a pupil of Wells' used ether instead of nitrous oxide with complete success, and obtained permission to administer it to a man in the General Hospital at Boston, who was about to undergo an operation for tumour of the neck, and from that time the use of anæsthetics in surgery was established. In 1848 Dr. Simpson, of Edinburgh, discovered the anæsthetic properties of chloroform, which soon became almost universally adopted in this country.

Chloroform (CHCl_3) was first made in 1831 by two chemists, who worked independently of each other. In 1832 Liebig examined the liquid but made an incorrect analysis as Dumas proved in 1834.

Chloroform is distilled from chloride of lime and rectified spirit. When pure it is clear and colourless, having a hot and intensely sweet taste; it may be adulterated with hydrochloric acid, sulphuric acid, or alcohol. HCl may be detected by exposing blue litmus paper to the vapour; H_2SO_4 by adding nitrate of baryta and well shaking, and alcohol by the reduction it occasions in the specific gravity.

Physiological action.—Chloroform turns the blood of a brilliant scarlet colour. It changes the physical character of the red blood-corpuscles and reduces their pigment, but has not such a universal power in the solution of them as ether; still it destroys great numbers, setting free their hæmatin and causing crystallisation of it; it also diminishes the power of the organic constituents of the blood to unite with O and to give off CO_2 . Husemann states that, after chloroform anæsthesia, bile acids appear in the blood.

Effects on pulse.—The pulse becomes during the first and second minutes of inhalation considerably increased in

frequency and force; at the end of the third minute it will be nearly at its normal level; and at the end of the fourth reduced to, or even below, its normal level.

Effects on respiration.—At first the breathing is quickened, due to excitement or alarm, which is soon calmed by the chloroform. There is no other effect on respiration until complete anæsthesia is produced, when the breathing becomes stertorous. Irregularity, marked slowness, or a gasping character of breathing, are signs of excessive administration.

Chloroform may be administered in several ways, viz. on lint or a handkerchief, or by some kind of inhaler, such as have been invented by Clover, Skinner, Allis, and others. If either of the two former are used, they should be held three or four inches from the face for the first few inhalations, in order to have a free admixture of air, the drawback to these methods being the absence of means for ascertaining the proportion of chloroform in the air which is being inhaled.

The principal points to be attended to during the inhalation of chloroform are, that it be not given too suddenly, or in too concentrated a form, that if possible the patient should be kept in the recumbent position, as sudden and perhaps fatal syncope may ensue from the erect or sitting position; care should also be taken in holding the patient (if violent) not to compress the abdomen, as the breathing becomes chiefly or wholly diaphragmatic.

Narcosis affects the great nerve centres in the following order:

1st. The cerebral hemispheres.

2nd. The cerebellum.

3rd. The medulla oblongata.

The patient loses:

1st. Local sensibility in the extremities.

2nd. The intellectual powers.

3rd. The general power of co-ordination.

4th. Power of receiving sensory impressions.

5th. Power of breathing.

6th. Involuntary muscular action.

The effects produced by chloroform in large doses very nearly resemble those of alcohol, the chief difference being the greater rapidity with which consciousness is lost in the former case. Like alcohol, chloroform attacks first the cerebral hemispheres, causing great excitement, often attended with nonsensical talk; there is, at the same time, accelerated action of the heart and dilatation of the capillaries, with contraction of the iris; this stage is attended with the greatest amount of danger. This stage once safely passed chloroform narcosis proceeds quietly and with comparative safety.

In certain diseased conditions of the system the administration of chloroform requires great care; in the early stages of phthisis it may usually be safely given, but in some cases of bronchial irritation it is liable to produce troublesome coughing. In heart disease, when its muscular substance has undergone fatty degeneration, in epileptic persons and those who suffer from congestion of the brain, great care must be observed, but the most dangerous condition for the inhalation of chloroform is when, through renal disease, the blood is loaded with urea.

The various sequelæ of the inhalation of chloroform are: sickness, generally removed by ice or cold water or a dose of opium; faintness and depression, often relieved by sickness or application of sal volatile to the nostrils; hysteria, which usually passes off spontaneously.

It is an open question whether the mortality in operations has increased or decreased since the introduction of anæsthetics; the number of operations have increased so enormously and of course the mortality similarly, but probably the average is nearly the same. Men appear to be more liable to death from chloroform than women, and the healthy and strong stand a worse chance than those who have been debilitated by disease. In obstetrics the immunity from danger is special and almost complete.

The usual precursory symptoms of death are a sudden paleness or lividity of the countenance, with shallow breathing, stertor, failure of, or a quick and weak, pulse, tossing about of the patient, delirium, convulsions, or coma.

Death from chloroform may occur in three different ways, viz. by coma, asphyxia, or syncope.

When death occurs by coma, the patient begins suddenly to breathe stertorously, and his face becomes livid and convulsed; the cause of death seems to be the circulation of venous blood through the medulla and nervous centres of the brain, generally occurring in epileptic or anæmic patients.

Death by asphyxia may be produced in one or two ways, viz.:

1st. By an insufficient quantity of air being admitted with the chloroform vapour, which is of course the fault of the administrator.

2nd. By spasmodic closure of the glottis, a very deceptive condition when unattended by stertor, as the heaving of the chest continues long after air has ceased to enter.

The signs of danger are increased lividity of the face, and the absence of air entering or coming out during respiration.

In death from syncope the patient suddenly becomes pale

and faint; the pulse beats in a flickering manner a few times and then ceases, though respiration may continue.

At the first sign of any of these symptoms the administration of the anæsthetic should be at once discontinued, as one additional breath may make all the difference to the recovery of the patient, especially if nitrous oxide is being used.

Ether ($\left. \begin{matrix} \text{C}_2\text{H}_5 \\ \text{C}_2\text{H}_5 \end{matrix} \right\} \text{O}$) was first described by Valerius Cordus in 1540 under the name of "Oleum vitrioli dulci." The term ether was applied to it about 190 years afterwards by Frobenius, but its anæsthetic properties were only discovered by Dr. Morton in 1846. It is prepared by heating a mixture of strong alcohol and concentrated sulphuric acid to 140° ; if pure, litmus paper will not become red. If exposed to the air ether will absorb O and forms acetic acid. Ether resembles chloroform in many of its characteristics; there are, however, certain important differences, viz. ether has little or no effect upon the heart, if any, that of increasing its action, neither does it diminish the power of the constituents of the blood to absorb oxygen and give off CO_2 as chloroform does. Perhaps the greatest disadvantage of ether is its extreme pungency. It attacks the various nerve centres in the following order:

1st. The cerebral hemispheres.

2nd. Cerebellum.

3rd. Spinal cord.

4th. Medulla oblongata.

One of the best tests of the patient being fully under the influence of ether is when the conjunctival surface of the eye can be touched with impunity and perfect relaxation of the muscles, so that if the arm be raised it will fall as if paralysed.

Cases where ether should not be administered.—(1) In very old persons with emphysema, hypertrophy of the heart, or fatty heart. (2) Persons subject to faint from very slight causes. (3) Habitual drunkards. (4) Patients with limited action of the lungs due to old pleurisy or pneumonia.

Anæsthesia by ether may be divided into three stages, viz. 1st. Exhilaration. 2nd. Stupor with snoring. 3rd. Dangerous state, coma with stertor, or asphyxia.

The recovery from ether is generally very slow. If death occurs it is due to asphyxia.

Nitrous oxide gas can only be employed in a few operations in surgery, on account of the short duration of its narcotic effects, amongst the few being those incidental to our own specialty. It is also used in ophthalmic surgery and other minor operations.

Nitrous oxide (N_2O) was discovered by Priestly. Sir Humphry Davy and Horace Wells made experiments with it in the beginning of the present century, but it is only during the last ten or fifteen years that it has become so largely used as it is at the present time.

It is prepared by heating nitrate of ammonia to $460^\circ F.$, which resolves it into N_2O and H_2O . It is a colourless, inodorous gas, possessing a slightly sweet taste; it liquefies when exposed either to an intense degree of cold or great pressure.

Physiological action.—The early experimenters observed a marked resemblance between the effects produced by nitrous oxide and those resulting from asphyxia. Nitrous oxide when it replaces the oxygen of the blood does indeed act upon the blood-corpuscles so as to darken them. The lividity of the lips and the darkening of the mucous surfaces, seen every day in the operating room during administrations of nitrous oxide, are the result of this action.

Nitrous oxide is the safest of all anæsthetics, and is undoubtedly the best for the use of the Dental surgeon. Anæsthesia is generally produced in about a minute, passing off in a similar space of time, but may be prolonged to an indefinite period by the admixture of ether.

A great advantage which nitrous oxide possesses over chloroform and ether is the absence of after effects, sickness seldom occurring unless the gas is inhaled too soon after a meal. In its pure state nitrous oxide may be given (if judiciously administered) to almost any one.

Among the difficulties liable to be met with as having the appearance of danger in administering nitrous oxide the most common is constriction or spasm of the glottis. The patient becomes very dark in the face, accompanied by every symptom of approaching asphyxia, which is readily relieved by catching hold of the tongue and pulling it well out of the mouth, and at the same time leaning the body forward.

Another symptom of danger is when the patient is attacked with syncope while under the influence of the gas. Make sure the tongue has not dropped back, then bring the patient's head and body forward violently; this failing, lay the patient on the floor, and dash cold water in the face. The most effectual remedy is to cause involuntary vomiting by forcing the finger far down the throat.

Another source of danger, and one very likely to produce very grave results, is from foreign bodies, such as gags, artificial plates, or stumps, being drawn into the larynx. Too much stress cannot be laid upon the importance of having a piece of string attached to the gag, as death has occurred from the

absence of this precaution. All artificial plates should be removed before the administration of the gas. The operator should be especially careful to remove every stump from the mouth as they are extracted, and, if the elevator is being used, he should seize the stump with the left hand directly it is lifted out of the socket.

Having now briefly spoken of the most important anæsthetics, there remains a very important point to be considered, namely, the treatment to be adopted in a case of overdose. In all such emergencies a great deal depends upon the promptness and coolness of the operator, together with the appliances at hand. There are two main objects to be attained:—(1) The re-establishment of respiration; (2) the re-establishment of the heart's action and circulation, which may be brought about by the observance of the following rules.

(1) Discontinue the administration of the anæsthetic.

(2) Draw the tongue well out of the mouth with fingers or forceps.

(3) Open doors and windows so as to allow a plentiful supply of fresh air to the patient.

(4) Remove all constrictions from the patient's throat and chest, and let these parts be freely exposed.

(5) The immediate commencement of artificial respiration by one of the following methods—(a) Inflation of the lungs by bellows; (b) mouth-to-mouth insufflation; (c) by the alternate and steady compression, and relaxation of the chest, and raising and then depressing the arms; (d) application of electricity to the heart or diaphragm.

(6) Dash cold water violently in the face and flip it with a wet towel.

(7) Warmth and friction are powerful adjuncts.

Let me now say a few words on the practice of being both administrator and operator. It is a bad practice, and deserves the highest censure, as it is impossible for one man to give proper attention to two things at once. Therefore, whenever practicable a surgeon ought always to be present. In country practice a medical man is not always to be found when wanted, and therefore you are sometimes obliged to perform both duties, but it is very risky, and ought not to be encouraged. Men will tell you "they give the gas sometimes two or three times a day in the absence of a surgeon, and without any bad results." So they may, but one day they may get a bad case terminating fatally, which might have been avoided had there been an experienced person to watch the state of the patient, and give additional help. Moreover, having a surgeon to administer the gas not only lessens the respon-

sibility on your own shoulders, but gives you a better chance of operating successfully, which is itself a recommendation.

Local anæsthesia may be disposed of in one word as inefficient. Freezing mixtures, ether spray, and electricity have been used to deaden pain during the extraction of teeth, but have been abandoned as soon as their novelty has worn off.

In conclusion, gentlemen, I must thank you for your kind attention, apologising for the inefficient and brief manner in which I have treated this very broad and interesting subject.

A good discussion followed, in which the President, Messrs. C. D. Curnock, L.D.S., C. D. Davis, M.R.C.S., C. Robbins, L.D.S., F. R. Pedley, L.D.S., L. Read, L.D.S., A. Alex. Matthews, J. S. Amoores, W. Matthews, Pedley, W. A. Turner, W. Hern, and Rees Price took part.

A cordial vote of thanks was given to Mr. Turner for his paper.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

WEDNESDAY, MARCH 16TH, 1881.

THOMAS EDGELOW, L.R.C.P., President, in the Chair.

MR. W. A. N. CATTLIN drew attention to a courteous letter he had received from the Secretary of the Royal College of Surgeons of England, asking him to correct one or two slight errors into which he appeared to have fallen in his recent address "On the Imperfections of the Dentists Act," when alluding to the Licence in Midwifery. It would appear that out of the three unqualified persons who were examined for the Licence in Midwifery, only one (*not three*) received it, and two were rejected. From the regulations respecting this licence, a copy of which accompanied Mr. Trimmer's letter, he ascertained the fact that candidates who were members or licentiates of other colleges, or who had passed through a curriculum of education prescribed by Rule VI, were up to 1875 entitled to be examined for the Licence in Midwifery, so that he was wrong in saying only members of the College could receive it.

MR. EDWARD BARTLETT read a short paper on the four following cases:—Case 1 was that of a girl, aged twenty, with a supernumerary tooth posterior to and between the central

incisors, and which appeared at the same time as the centrals. Case 2 was that of absence of the second bicuspid, which was accounted for by the posterior deciduous molar being forced up nearly into the antrum by the closure of the first bicuspid and molar over it. This (the crown of the molar) Mr. Bartlett removed; it felt on exploration like dead bone, being covered with tartar. Case 3. Two very large supernumerary teeth and a lateral, which he had removed from the mouth of a man, aged thirty-three, who had a third central incisor, undistinguishable from the normal ones. Case 4 occurred in a young lady, aged nineteen, in which all the permanent teeth were absent, with the exception of the two centrals, two canines, and two molars, some of the temporary teeth remaining in their position.

The PRESIDENT stated that he had described an almost identical case to that of No. 2 to the Society only a few months since.

Mr. HAMILTON CARTWRIGHT (the Treasurer) then made some remarks on the treatment of Riggs' disease, consisting in the destruction of the periosteum of the teeth, absorption of the alveoli, and ultimate loosening and loss of the teeth. He said that it generally commenced in an unhealthy condition of the gums, and that he believed the deposit of tartar to be secondary to the disease; the deposits of the saliva pocketing between the separated gum and the teeth. Of course the first and most important matter was to remove the tartar effectually, but he still held that much might be done by a very, so to speak, "heroic" treatment with the knife and escharotics used alternately. The Treasurer then gave his mode of treatment in detail.

Mr. HAMILTON CARTWRIGHT then showed a most remarkable case of the jaw of a dwarf, about three feet high, and compared the denture with that of the American Midgets. The dwarf was the child of wealthy parents, and grew normally for some months, when the development of its body became completely arrested, whilst that of the head and brain continued to a great extent. The boy is about sixteen years of age, and highly intelligent, having recently gained a prize for French at school, and having a great taste for study generally. He walks, however, with difficulty, his head being so much larger in proportion than his body, but otherwise he is of a bright and lively disposition. His teeth, unlike those of most dwarfs, are not deficient, as in the case of "the Midgets," but consist of a perfectly formed *first* set. In the upper jaw, only the first molars had been shed to give place to the bicuspids, which are nearly erupted, whilst the six-year-old molars are just

appearing. In the upper jaw there is a perfect set of milk teeth, without any sign of caries. In conclusion, Mr. Hamilton Cartwright wished to draw the attention of the Society to the analogy existing between the teeth and dermic structures in their development, and that as a rule both the hair and teeth were deficient in dwarfs; but that in this case the hair was as perfect as the teeth—the only peculiarity in the latter being the persistence of the first denture up to the age of sixteen years.—*Med. Times and Gazette.*

DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE.

THE Twenty-Third Annual Meeting of the Governors of this Institution was held at the Hospital in Leicester Square on the 24th March, Mr. THOMAS H. HILLS presiding. There were also present Messrs. Gregson, Parkinson, Oakley Coles, Rogers, Ibbetson (Hon. Sec.), Hepburn, Hutchinson, Tomes, Coleman, Marsh, and T. F. Ken Underwood.

The following Report of the Committee of Management was read by the Secretary (Mr. J. Francis Pink).

Report of the Committee of Management.

IN presenting the twenty-third Annual Report your Committee are glad to be able to state that the past year has been one of continued and increased usefulness. They have received gratifying evidence of the esteem in which the charity is held in the City of London, by receiving a grant of forty guineas from the Corporation. The Right Honorable the Earl of Derby has shown his interest in the Hospital by making a second donation of ten guineas. Mr. R. B. Littell has given the sum of fifteen guineas during the year, and the Hospital Sunday Fund has made a contribution to the resources of the Institution of £58 6s. 8d., the amount received from the Hospital Saturday Fund having been £28 14s. 10d. Apart from the question of the amount of money received, your Committee feel that contributions from such varied, and yet representative sources, speak strongly in favour of the position which the Hospital occupies in the list of Metropolitan charities.

The annexed tabulated statement will indicate the fluctuations to which (with all other charities) the Hospital has been subjected during the last eleven years.

Years.	Life Governors.	Annual Subscribers.	Special Donations.	Total of fore- going sources of Income.	Patients.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1870	52 10 0	227 12 0	116 8 8	396 10 8	16,171
1871	105 0 0	265 2 0	38 9 2	408 11 2	16,539
1872	188 0 0	323 0 6	47 12 0	558 12 6	17,410
1873	217 10 0	329 15 0	47 18 11	595 3 11	16,680
1874	161 15 0	348 5 0	109 8 2	619 8 2	16,890
1875*	280 0 0	393 19 6	336 8 10	1010 8 4	16,100
1876	220 10 0	397 18 6	151 0 4	769 8 10	17,158
1877	115 10 0	457 6 6	158 8 5	731 4 11	18,500
1878	147 0 0	482 7 0	235 8 8	864 15 8	20,141
1879	220 10 0	500 9 0	219 18 3	940 17 3	22,600
1880	173 5 0	488 16 0	80 7 3	742 8 3	24,500

In another two years the Dental Hospital of London will have completed the first quarter of a century of its existence, and your Committee feel that the approach of such a time calls for some special statement, and appeal to the founders and supporters of the charity.

It may confidently be asserted that the Institution has fulfilled the purpose for which it was established, namely, a hospital for the relief of the suffering poor, and a school for the teaching of Dental surgery. These distinct objects invest it not only with a twofold interest to the Dental profession, but with a twofold importance to the general public. From a charitable point of view the opening of a hospital devoted to the treatment of diseases of the teeth was deemed an expedient thing. By the recent enactments of Parliament, a school of Dental surgery has become an absolutely essential institution. During the last twenty-three years this work has been steadily progressing, and your Committee feel that they are not assuming too much when they say that but for the generous support given to the Hospital in valuable time, skill, labour, and pecuniary aid by the members of the Dental profession, the recent Dental legislation, by which the public will benefit so much, would have been delayed for many years, even if it had ever been accomplished.

Educational opportunities developed educational requirements, and these in turn reacted to produce a higher educational standard of professional efficiency. Your Committee feel that they cannot too strongly impress upon the lay supporters of the Hospital the interest which all this progress should possess for each of them individually. The work is

* The large amount received during this year was due to a special appeal being made for the building of the new hospital.

one of public interest and importance, and should receive to the fullest extent necessary public support.

An examination of the annual reports since the foundation of the Hospital will reveal the fact that by far too large a proportion of that which has been received for the funds of the Hospital has been given by members of the Dental profession. The continuance of such a state of things is, on several grounds, undesirable. It is unjust that any charity that is for the general good should be supported mainly by a special section of the community. Further, it is undesirable that a special hospital should be maintained to any considerable extent by those who are practising the speciality for the teaching of which the Hospital was even in part established. But above all, it is undesirable in as much as a limited field for appeal, of necessity, involves a limited degree of support.

Your Committee, therefore, earnestly ask for the help of those members of the community who, interested in the physical wellbeing of their fellow-creatures, recognise the importance of a department of surgery, which by its exercise does so much to maintain health and allay a most distressing variety of pain.

The Committee have to regret the loss of the valuable services of Mr. W. P. Bartlett, as Assistant Dental Surgeon, which post he filled to the entire satisfaction of the Committee during a period of twelve years. They have appointed as his successor Mr. W. Storer Bennett, lately Medical Tutor, and formerly a distinguished pupil of the School.

In accordance with the laws of the Hospital, the following three gentlemen retire from the Committee of Management:—Messrs. T. A. Rogers, Clover, and Vasey.

To fill these vacancies the Committee beg to recommend Messrs. A. Willett, S. D. Fuller, and Jones Gibb.

The Report of the Medical Committee was as follows:

Report of the Medical Committee.

It is with much satisfaction that the Committee are able to report that the work of the Hospital has been efficiently carried out during the past twelve months, and that relief has been given to a number of patients larger than in any previous year.

REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

From January 1st to December 31st, 1880.

Extractions	{ Children under 14	5940
	{ Adults	8788
	{ Under Nitrous Oxide.....	3719

Gold Stoppings.....	1245
White Foil ditto	115
Plastic ditto	3825
Irregularities of the Teeth treated mechanically	990
Miscellaneous Cases.....	2831
Advice Cases.....	1125

Total..... 28,578

Those not familiar with the every-day work of a Dental Hospital, or of the Dental department of a general hospital, may be struck with the very large number of extractions as compared with operations for the preservation of teeth. It should be explained that many of the patients seek relief only when driven to do so by prolonged severe suffering, and do not care for anything beyond relief from present pain, and that such patients, not requiring any order, are very numerous.

During a short period in the summer of the past year, the Committee regret that there was, in some cases, an unavoidable delay before lengthy operations for the preservation of teeth could be undertaken.

But the circumstances under which the resources of the Medical Staff were thus overtaxed having arisen out of the recent passage of the Dentists Act, and being such that they can hardly again occur, the Medical Committee feel confident that in future years the full number of patients, limited only by the accommodation in the Hospital, will be treated without delay, notwithstanding that the more difficult and more lengthy operations, which are now a part of the daily work, render the expenditure of time upon the individual patient greater than was formerly the case.

Anæsthetics have been administered for 3719 operations, this being 500 more than last year; and this increase explains the large item of expenditure upon nitrous oxide gas, which will be found in the Balance Sheet.

Mr. W. P. Bartlett having resigned the office of Assistant Dental Surgeon, in which capacity he served the Hospital for a period of twelve years, Mr. W. C. Storer Bennett, late Medical Tutor to the School, and formerly a distinguished pupil at the same, has been appointed to, and has entered upon, the duties of the office.

The Committee beg to tender their thanks to Mr. R. Giles Bradshaw and to Mr. Blackmore, and at the same time to express their complete satisfaction with the manner in which these gentlemen have fulfilled the duties and responsibilities attached to the offices of House Surgeon and Assistant House Surgeon.

The School of Dental Surgery shows satisfactory progress,

the number of entries being considerably greater than last year, but the Committee attach even more importance to the improved educational standard which is attained by the students now joining the Hospital. And it is with full sincerity that the Committee can state that the capabilities, the earnest devotion to work, and the general demeanour of the students at the Dental Hospital, are such as to afford them great satisfaction.

Mr. Claude Rogers continues to fill the office of Demonstrator of Operative Dental Surgery, a post the Committee trust he may long occupy.

Mr. Morton Smale, also an old pupil of the Hospital, has been appointed Medical Tutor, in the place of Mr. Storer Bennett.

Mr. J. Smith Turner has been compelled to resign the Lectureship on Dental Mechanics, but while expressing their great regret at losing him as a colleague, the Committee most warmly thank him for having, at their pressing request, continued to lecture for some time after the burden of other work had made him desirous of relief from this duty.

Dr. Joseph Walker, Dental Surgeon to the Westminster Hospital, and formerly Assistant Surgeon to this Institution, has been elected to the Lectureship vacated by Mr. Turner.

Mr. JAMES PARKINSON, in moving the adoption of the Report, remarked that it was one of the most satisfactory the Committee had presented to the subscribers, and congratulated the Meeting on the progress that the Hospital had made.

Mr. R. HEPBURN seconded the motion, which was carried unanimously.

The Meeting then proceeded to elect the officers for the ensuing year, and Messrs. A. Willett, T. D. Fuller, and Jones-Gibb were elected to fill the vacancies in the Committee caused by the retirement of three of its members. Mr. G. Penson was appointed a Trustee of the Hospital, and the Rev. G. B. Twining and Mr. G. C. Ash were re-elected Auditors.

The Meeting was then made special to adopt certain revised rules of the Hospital.

On the motion of Mr. OAKLEY COLES the revised rules of the Institution were unanimously approved.

Mr JAMES PARKINSON proposed a vote of thanks to the Chairman, which was carried unanimously.

The CHAIRMAN briefly acknowledged the compliment, observing that he had been connected with the Hospital since its commencement, and it had afforded him great satisfaction to find that it had done so much good for the public.

Miscellanea.

A NEW USE FOR THE DENTAL ENGINE.

MR. GEORGE FIELD, aural surgeon to St. Mary's Hospital, London, has lately called attention in the 'Lancet' to the value of the dental engine for the removal of ivory exostoses in the ears. This mode of treatment was first suggested by Dr. Arthur Mathewson, of Brooklyn, New York, who read a paper on the subject before the International Otological Congress in 1876. Mr. Field, who has by this means operated successfully on two patients, says:—"No one can imagine, unless he has actually drilled into these dense tumours, their adamant-like consistency, and the great difficulty there is in making any impression upon them. I believe that this instrument (the dental engine) is the only one which will penetrate with any certainty such pre-eminently hard and unyielding growths of the temporal bone." Even with the engine the operation is a tedious and difficult one; in one case Mr. Field operated seven times on large ivory growths, completely filling up both ears, and the patient was seven hours in all under chloroform and ether. "Let any one try to saw through the hardest part of the temporal bone, and the resistance offered will give some idea of the difficulty of an operation on an ivory exostosis." Previous to the adoption of Dr. Mathewson's suggestion, these growths were removed with great difficulty by means of saw and chisel, the amount of violence which was required involving very great danger. Even with the engine it can be readily understood that from the narrowness of the canal, which becomes more or less obstructed by blood and detritus, and the close relation of the brain and other important structures, great care is necessary. On one occasion Mr. Field did make a momentary slip, and slightly injured the membrana tympani, and temporary facial paralysis followed, showing that the instrument had pierced the inner wall of the tympanum and the aqueduct of Fallopius, and had slightly wounded the facial nerve. The perforation of the drum soon closed, the paralysis passed off, and the patient regained his hearing in both ears.

NATIONAL DENTAL HOSPITAL AND COLLEGE.

VERY extensive additions have recently been made to these premises at a cost of over £200. The capacities of the Institution have thus been largely added to, and accommodation, with excellent light, has been obtained for sixteen more chairs. A second extraction room will shortly be added, as well as additional lavatories. These latter will materially contribute to the comfort and requirements of the rapidly increasing number of students, as well as of patients, attending the Hospital.

A concert will be given in the month of May in aid of the funds of the Institution, which will be largely drawn upon by the above-mentioned alterations. It is hoped that the profession will help the Committee of Management in a substantial manner.

EDINBURGH DENTAL HOSPITAL.

THE summer session of the Edinburgh Dental School will open on Monday, May 2nd. Besides the ordinary lectures, &c., required for the curriculum, a special course of Demonstrations in Gold Plugging will be given by M. C. Matthew, L.D.S. Ed., on Mondays and Thursday at 8 a.m.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following were the questions set at the written examination for the license in Dental Surgery, which took place on the 1st and 2nd inst. :

Anatomy.

1. Give the origin, insertion and nerve supply of the muscles which depress the lower jaw.
2. Give the course, relation and distribution of the facial artery, after it passes over the base of the lower jaw.

Chemistry and Physiology.

1. What is meant by the atomic theory? Give the atomic weights of Cl, C, Fe and Hg.
2. In what respects does an alkali differ from a base?
3. What are the physiological purposes served by the skin?

Surgery.

1. What do you understand by a case of tongue-tie? Describe the operation for its cure, and mention the danger to be avoided in the operation, and how.

2. Give the causes, symptoms and treatment of erysipelas of the face.

Medicine and Materia Medica.

1. Enumerate the diseases of the antrum, and state briefly their causes and treatment.

2. What are the physiological actions and therapeutic effects of the sulphates of magnesia, of soda, and of quinine? In what doses are they prescribed?

Dental Anatomy and Physiology.

1. Describe the microscopic appearances of a shedding deciduous tooth-fang.

2. Enumerate and shortly describe the varieties of dentine in man and in the lower animals, giving an example of each.

3. Identify the specimens Nos. 1, 2 and 3 under the microscope.

Dental Surgery and Pathology.

1. What conditions pertaining to Dentistry may give rise to closure of the jaw, and what would be your treatment?

2. What symptoms indicate irritation and inflammation of the pulp and irritation and inflammation of the membrane? Give the treatment necessary for the preservation of the tooth in each case.

3. Give at least three forms of accident that may occur during tooth extraction (exclusive of fracture of the tooth or neighbouring teeth) and state the reparative treatment for each.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

DENTAL SURGERY EXAMINATIONS, MARCH 31ST, 1881.

Examiner—MR. F. ST. B. TAYLOR.

1. A lower molar tooth being fractured during extraction, what ill effects may follow if the roots are allowed to remain?

2. Mention the different circumstances in which you would advise extraction.

Examiner—MR. B. WILLS RICHARDSON.

1. Describe the mucous membrane of the tongue.

2. Under what circumstances have Haversian canals been found in the crusta petrosa?

Examiner—Mr. E. STAMER O'GRADY.

1. Name and describe the different appliances for, and modes of treatment of, fractures of the lower jaw.

2. What circumstances may necessitate extirpation of a lower jaw? Give the different risks and dangers attendant on such operations.

Examiner—Mr. HENRY G. SHERLOCK.

1. Name the different bases used on which artificial teeth are mounted, and give your opinion of each.

2. Name the diseases that may arise from a blow on a tooth, and give their treatment.

Examiner—Mr. JOHN H. LONGFORD.

1. What would be your treatment, before moulding for an artificial denture, the mouth of a person suffering from the effects of either mercury or alcoholic stimulants?

2. In second dentition, what consequences may result from the removal of the temporary molar teeth, two or three years previous to the eruption of the permanent bicuspid?

Examiner—Dr. ED. A. STOKES.

1. Give the boundaries of the parotid gland, its muscular, vascular, and nervous relations, trace its duct, and explain its conservative actions on teeth.

2. Contrast the upper and lower molars; describe their connection with alveoli, and give the origin and course of the nerves and blood-vessels which supply them.

[We are informed that out of 68 candidates who presented themselves for this examination, 20 were unsuccessful.]

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES DENTAL HOSPITAL.

To the Editor of the 'British Journal of Dental Science,'

SIR,—My attention has just been called, rather late I am sorry to say, to an article which appeared in your Journal of March 1st, referring to the Newcastle and Northern Counties Dental Hospital which has been established in this town. In that article you alluded to a paragraph which

appeared in a local newspaper concerning the above hospital. As I have no control over the columns of any newspaper, and certainly none over those of your contemporary, I am consequently not responsible for the "puff" referred to. I enclose a list containing the names of the gentlemen connected with the Newcastle Dental Hospital.

With regard to my qualification and of what college,

I am, &c.,

G. F. TATE, L.D.S.I.

43, Blckett Street, Newcastle-on-Tyne;

April 12th, 1881.

* * * We insert Mr. Tate's disclaimer with great pleasure, and feel bound to add that the paper he encloses shows that the institution referred to, of which he is *the* Dental Surgeon, is managed by a highly respectable committee. We append the paragraph on which our remarks were founded, first because it is a typical example of "how not to do it," and secondly, that our readers may see that we had some justification for our not very friendly notice. The fact that Mr. Tate is content to undertake single-handed all the work of a hospital which is open free on three days in each week, shows that he is possessed of plenty of energy, and this is pretty sure to lead to success in any walk of life.—
ED. B. J. D. S.

"My readers will be glad to learn that a Dental hospital for the treatment of diseases of the teeth for the suffering poor of the North of England is about to be established in Newcastle. Under the prevailing system professional Dental attendance is not always within the reach of all classes, and too often those who are suffering from diseases of the teeth fly to the nearest chemist's shop for alleviation, where in six cases out of a dozen the inexperienced and experimenting operator does more harm than good to his patient. Medical men, too, have but a superficial and theoretical idea of this description of work, and in cases where tumours exist it is absolutely dangerous to permit of unskilled treatment, for every risk is run of thwarting and frustrating the designs and discoveries of Dental science. I feel glad, therefore, that an institution of the kind is about to be established so near at hand, and, further, that the honorary appointment of Dental surgeon to the Hospital has been conferred on Mr. G. F. Tate, L.D.S.R.C.S., Blckett Street, Newcastle (son of Mr. Wm. Tate, Sunderland, inspecting engineer for the Earl of Durham), a young gentleman of unlimited experience, gained not only in a wide practice in his native country, but on the Continent of Europe, and at the Court of Egyptian Royalty," &c.—*Sunderland Daily Post*.

To Correspondents.

Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.

2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

“C. B. S.” (Brighton).—We see no reason why we should congratulate you publicly. The additional capital letters which you are entitled to place after your name may carry some weight with a certain portion of the British public, but from a professional point of view, with which alone we are concerned, we feel assured that your original diploma is at least as highly appreciated as that which you have thought fit to add to it.

W. SMITHARD, L.D.S.—For obvious reasons we can only publish such lists when they are received from an official source.

Messrs. WILLIS, WEBER and STOREY are thanked.

Communications have been received from Messrs. T. Ken Underwood (London), G. H. Crowther (Wakefield), Thos. Gaddes (London), H. B. Mason (Exeter), J. F. Pink (London), W. B. Macleod (Edinburgh), G. F. Tate (Newcastle-on-Tyne), G. Brunton (Leeds).

BOOKS AND PAPERS RECEIVED.

- ‘Dentists’ Register,’ 1881.
- ‘L’Odontologia.’
- ‘Correspondenz Blatt für Zahnärzte.’
- ‘Deutsche Vierteljahrsschrift für Zahnheilkunde.’
- ‘Lancet.’
- ‘British Medical Journal.’
- ‘Medical Times and Gazette.’
- ‘Missouri Dental Journal.’
- ‘Pharmaceutical Journal.’
- ‘Specialist.’ &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

No. 319.

LONDON, MAY 1, 1881.

VOL. XXIV.

A COURSE OF LECTURES ON DENTAL ANATOMY AND PHYSIOLOGY.

Delivered at the National Dental College during the Winter
Session, 1880.

By THOMAS GADDES, L.D.S. Eng.,
Lecturer also on the Elements of Histology; Assistant Dental
Surgeon to the National Dental Hospital.

LECTURE VI.

Hard unvascular dentine.

WE now come to consider hard, unvascular dentine, which is a highly elastic substance, of a white colour with yellow tinge, and to some extent translucent. When broken a silky lustre is seen upon the fractured surfaces, which is mainly due to the presence of air in the tubes, and this condition is more apparent in dry than in fresh dentine. The structure of true unvascular dentine is an organic matrix richly impregnated with calcareous salts, and everywhere permeated by parallel tubes, which, for the most part, run at right angles to its external surface.

The chemical composition of the *matrix* will necessarily vary in different individuals, and also notably in the same individual in youth and in old age—this latter difference being due to the greater impregnation of the older matrix with calcareous salts.

The analysis of an adult molar of man, given by Bibra, which was quoted by Professor Owen in 1845, also by Mr. John Tomes in 1848, and again by Mr. Charles Tomes in his 'Dental Anatomy,' will be found in the table given in Lecture III.

The organic basis of the matrix is a gelatinous substance, and is closely related to that of bone, with which, however, it is not identical. It is of firmer consistence, and does not readily yield its gelatine on boiling. It has also been called *dental cartilage*.

By submitting a tooth to the slow action of dilute acids

the earthy matter is removed, and the form and some of the structural characteristics are maintained in a soft, tough, semi-elastic mass. The normal matrix of a perfectly-formed tooth is uniform and transparent; no trace of cellular or other structure can be detected, save the dentinal tubes.

The dentinal tubes.—In the *general* description which I have just given of dentine, I said that the tubes ran for the most part at right angles to the surface of the dentine; but the precise direction of the tubes varies in different parts of the tooth. Each tube starts by an open circular mouth upon the surface of the pulp cavity. Thence it runs outwards in a direction generally perpendicular, or at right angles to the surface, towards which, however, it becomes smaller and breaks up into branches at a little distance beneath the surface of the dentine. So the diameter of the tubes is greater at the pulp extremity than at the periphery. In man the diameter of the dentinal tubes ranges from $\frac{1}{4500}$ to $\frac{1}{10000}$ in. The course which the dentinal tubes pursue is not perfectly straight, but they describe certain curves known as the primary and the secondary dentinal curves. The primary curves are longer, describe segments of larger circles, and are fewer in number than are the secondary curves, and they have been likened unto the italic letter *f*—indeed the line of beauty. The number of primary curves described in a human tooth averages from two and a half to three and a half from the pulp to the periphery.

The primary curves in the root of a human tooth are sharper and a little more numerous than in the crown. Remembering that the tubes run parallel with each other, and, consequently, that each tube bends at the same distance from the surface, this coincidence in the primary curvature of the dentinal tubes gives rise to peculiar shadings, or slight differences in colour and opacity, which have been termed the *lines of Schreger*. These lines of Schreger, then, are not substantive, but are merely shadings or markings ranged parallel with the surface of the dentine, and are due to the coincidence of the primary curvatures of the dentinal tubes, which by their obliquity reflect light differently. The description of the lines of Schreger, given on p. 24 of the 'Dental Student's Note Book,' is an error for which I am responsible. Other markings or lines are seen in dentine. These were described by Owen as "contour lines," and his description of those markings included the lines of Schreger, and other striæ and laminae totally different from those shadings. So, to avoid the confusion arising from calling two distinct conditions by one name, we must let the lines of Schreger be understood in the sense, and as representing

the condition I have described; and understand by the "*contour lines*" certain layers of dentine in which calcification is incomplete: That is to say, over the entire area of the developing pulp a layer of dentine will be formed and its calcification completed, and then another layer will form in which calcification is less complete, the impregnation with earthy salts being partial and defective, and so on alternately. These areas of imperfect calcification are made up of interglobular spaces, and they would appear to indicate the periodicity of different degrees of development. The formation of interglobular spaces I shall explain when we come to treat of development.

Mr. Salter objects to the term "*contour lines*," inasmuch as they only approximate remotely to the contour of the tooth. He looks upon these markings as indications of the incremental development, as showing the successive portions by which the tooth is built up, and he calls them "*incremental lines*." We shall by-and-bye see that interglobular spaces—of which these incremental lines are but a conglomeration—are abnormal conditions, and consequently such an abnormality will not justify us in considering the dentine as a laminated tissue, as Mr. Salter does.

The secondary dentinal curves are very much smaller and more numerous than the primary curves. As many as 200 secondary curves have been estimated in $\frac{1}{10}$ in. The cause of these slight undulations is probably due to the line of development taking place in a spiral direction, and the effect of an elongated spiral viewed on its side will, of course, be only slight undulations such as the secondary curvatures of the dentinal tubes present. As we saw, the primary curves were sharper in the root of a tooth, so also are the gyrations termed secondary curves more strongly marked in the root.

As the tubes pass outwards from the pulp-cavity they often divide into two equally large branches; they also give off fine branches, which anastomose with similar branches from neighbouring tubes. For the present I shall use the term branches, but, when the histological formation of the tubes is considered, we shall see that such are not branches from the tubes, but rather that the tube or trunk is to be looked upon as a confluence of the earlier formed tubes or so-called branches.

In the crown of a human tooth these fine branches are comparatively few, until the tube has reached nearly to the enamel; but in the fang they are so numerous as to afford a ready means of distinguishing whether the section is from the root or crown of a tooth.

Owing to their breaking up into minute branches, some of

the tubes become lost as they approach the surface of the dentine, and apparently end in fine-pointed extremities; others terminate by anastomosing with terminal branches of neighbouring tubes, forming loops, both near the surface of the dentine and also deeper in its substance. Some tubes pass into small interglobular spaces, which are found in great abundance upon the surface of the dentine in the roots of teeth, and in which situation, from the consequent granular character of the tissue, such is called the "granular layer." This granular layer, being the part of the dentine first formed, is necessarily contiguous with the superjacent tissue of the root—the cementum. Some of the canaliculi from the lacunæ of the cementum communicate with the spaces in the granular layer, as do some of the dentinal tubes, and thus a connection between the dentine and the cementum is not infrequently established. Indeed, there may occasionally be seen direct communication between a dentinal tube and a canaliculus.

From the existence of the interglobular or granular layer upon the surface of the denture in the roots of all human teeth, it is looked upon as a constant condition; but when it is present in the crown it must, from its rarity and histology, be looked upon as abnormal. So also must the passage of the dentinal tubes into the enamel be regarded as exceptional and almost pathological in its nature. It was first demonstrated by Mr. John Tomes that the passage of the dentinal tubes into and through a great part of the thickness of the enamel was characteristic of the order *Marsupialia*; the wombat excepted. The passage of the dentinal tubes into the enamel has also been found in the jerboa (a rodent), and in Soricidæ (shrews) among *Insectivora*.

As to the contents of the dentinal tubes there has long been diversity of opinion. Mr. J. Tomes, who first demonstrated the contents of the dentinal tubes, called such contents "dentinal fibrils." Mr. Salter objects to such a term, and says their contents are a "dense plasma." But this difference almost entirely resolves itself into a quibble as to the term, for both agree that the contents are prolongations from the odontoblast in the pulp. The nature of the dentinal tubes and of their contents I think it well to defer till we treat of development, when their description will take its proper place as in the histological formation of the tooth.

Regarding the tubes I shall only add in conclusion that, according to Dr. Beale, they are not tubes in the same sense as the canaliculi in bone are tubes; they do not convey nutrient fluid, they are simply tissue in a transitional condi-

tion between "formed material" and perfectly "calcified formed material;" and their contents, likewise, must be looked upon as a yet younger transitional tissue—the filament or process from the odontoblast, which has not yet become calcified. So by removing this youngest material, or contents of the tubes, there is left behind a harder surrounding material, the so-called sheath of Newmann or wall of the tube, which is embedded in the calcified matrix.

[The writer much regrets the want of time to prepare the more necessary illustrations to these lectures.]

Dental Surgery and Medicine.

ON THE MODE OF ORIGIN OF SOME SECONDARY LESIONS IN RELATION TO DISEASES OF THE TEETH.

A paper read before the Students' Society of the National Dental Hospital and College, March 11th, 1881.

By EDWARD W. COX MOORE, L.D.S.R.C.S.I.

MR. PRESIDENT AND GENTLEMEN,—In most books on Dental Surgery a considerable amount of space is usually devoted to a description of the nervous affections which may result from the condition of the teeth, these diseases occurring in some cases where a healthy tooth is undergoing normal development, and in others where we have to deal with a tooth which has undergone decay, or one in which some new growth presses upon the nerves in connection with the tooth. This subject is one which it is difficult to handle from a purely Dental point of view, owing to the various structures which have to be brought under consideration and the variety of diseases that may affect those different structures.

The object of this paper is not to give a *résumé* of the multiform diseases resulting from irritation in and about the teeth, but rather to investigate the question as to the mechanism by which some of the more complex cases of reflex irritation, with the resulting lesions, can be explained and shown to be parallel to the mode of production of other diseases in the body. It will perhaps simplify matters to com-

mence by giving a few examples of the special form of secondary disease which it is the object of this paper to elucidate.

The first example we take is one related by Mr. Hilton of the late celebrated Dr. Addison.

"The latter was suffering from an offensive discharge from the auditory canal of one of his ears, which annoyed him very much, and below the external ear was a small gland enlarged in the upper part of the neck. He had tried various remedies for this discharge, and had gone, I believe, to some surgeons who made a specialty of diseases of the ear, but as far as I could judge no good resulted from any of their applications. Upon examining the ear from which the offensive discharge proceeded, I found a slight ulceration upon the floor of the auditory canal. On arguing the question out between us, we came to the conclusion that the ulceration probably depended upon a diseased molar tooth in the lower jaw on the same side. We had that tooth extracted, and in a very short space of time the ulcer healed, the discharge and morbid secretion disappeared from the auditory canal, and so soon as that ulceration was cured, the enlarged gland subsided."

In this case the symptoms, though troublesome, were not dangerous: but we pass on next to a class where more important structures are affected, so ably described by Dr. Woakes in his work on 'Deafness, Giddiness, and Noises in the Head,' viz.:

"A child is cutting its teeth, and while the gums are yet swollen it suffers acutely from earache; any one accustomed to watch carefully the symptoms of these little patients will scarcely fail to discern in the troubled face, the thrill of agony, accompanied with cries or shrieks, when its position is moved, and above all the constant raising of the hand to the side of the head; no one who has watched these symptoms will fail to connect them with the most agonizing sufferings of early life—'earache.'

"On examining under these circumstances with the speculum, in a good light, the drum of the ear, it will be found to have exchanged its pearly-like lustre for one of redness; this gradually extends to the lining membrane of the cavity of the tympanum, and unless this condition be actively treated by lancing the gums and local removal of blood, the further stage is soon reached at which formation of pus commences, and the child becomes permanently deaf from bursting of the membrane, or the still more serious complication occurs of extension of inflammation to the membranes of the brain, an occurrence for which every facility is arranged by the intimate communications which, in the infant especially, exist for

such an issue, convulsions, coma, and death rapidly succeed."

Now, the point I wish to emphasise is this: the pain is not what we vaguely term neuralgia; it is a definite trophic change, an inflammation taking place in the deeper seated tissues of the ear; the gums are lanced and thereby reflex irritation is lessened.

But a child has by no means escaped ear trouble arising from the teeth if it has safely passed over the period of their evolution. External otitis has been distinctly traced in children to the presence of a carious tooth, and even in later life a decaying tooth will indicate its presence by prolonged earache and will even establish an otorrhœa. The first example I gave you was of this kind.

As another example of trophic or nutrition lesions of a more trivial kind I may mention the following, recorded by Mr. Hilton:

"A person was brought to me by a surgeon suffering very great pain on the left side of his face. He was much exposed to the weather and suffered a great deal in consequence. He had taken a good many things to cure the 'neuralgia' as it was termed. I observed that he wore a wig, and I asked the reason. He said, curiously enough the hair on my left temple has all turned grey. I did not like to have black hair on one side and grey on the other, so I had my head shaved and wear a wig. Upon examining his mouth, I found he had a decayed molar tooth (rather painful) on the left side of the lower jaw, supplied by the third division of the fifth nerve. When this second lower molar was extracted the neuralgic pain very nearly ceased. I have not seen the patient since, so cannot say whether or not the hair has recovered its colour. All I can say is, it was stated to me that during the time he was suffering extreme pain on the left side, the hair over the temporal region became nearly white, the difference in colour suggesting to me some structural deterioration, and to the patient the propriety of having his head shaved and wearing a wig."

Another case is related where the constant presence of fur on one half of the tongue caused a patient to seek advice. The patient was found to have a decayed molar tooth on the same side as furred tongue. The tooth was removed, and a fortnight afterwards all the fur had subsided.

Quite a different explanation has been put forward of this unilaterally furred condition of the tongue, viz. that the half of the jaw in which the diseased tooth is situated is but little used in mastication, and hence no removal of epithelium of the tongue takes place by the friction of the food on

that side. This objection is completely overruled by the following :—It is shown that the tongue was furred only over the distribution of the lingual gustatory to the anterior part of the tongue, whereas it is clear that if the furring had resulted merely from a want of use of that part of the jaw, the fur would not have been limited to the anterior, but likewise have affected the posterior part of the tongue; this part, which receives its nerve supply from the glosso-pharyngeal nerve, may sometimes be seen to be furred in cases of inflamed tonsils, which also receive branches from the glosso-pharyngeal.

Mr. Hyde Salter relates the case of a healthy young woman, from Bournemouth, who consulted him on account of an ulcer, about the size of a shilling, on the side of the neck; this had commenced some twelve months before as a painful red spot and had been treated by applications of every kind without the slightest improvement in the condition of the ulcer. Mr. Salter examined the mouth, and found the wisdom (lower) on the same side of the jaw as the ulcer to be in an advanced stage of caries; this tooth was promptly extracted and within a fortnight after the ulcer was completely cured and remained a firm cicatrix ever after.

In all the examples I have given you a definite nutritive change has been found to exist in the irritated area, whether resulting in such slight changes as the turning grey of hair, a condition found normally later in life, in the production of an excessive amount of ill-formed epithelium, or a condition of hyperæmia, inflammation, and suppuration, as exemplified in the ear disease, up to the local destruction or death of tissue resulting in an ulcer.

The question now before us is to find the solution of the various symptoms detailed. Taking the case in which inflammation of the external ear resulted from the cutting of a tooth, we have the phenomena of pain, inflammation, and suppuration in an organ widely separated from the recognised exciting cause, and with no obvious intercommunication between the two except through the medium of nerve fibres; the simple continuity of sensori-motor nerves is insufficient to produce the conditions under review. The explanation will be found in the relation of the vaso-motor nerves and the functions which it is their office to fulfil. These vaso-motor nerves have the power of altering the size of the arteries to which they are distributed, and by this means can increase the supply of blood entering the part to which the irritation is applied, or when they act so as to contract the vessels greatly diminish the amount of blood circulating.

The action of the sympathetic nerve just described can be clearly shown in a transparent tissue, such as is found in the ear of a white rabbit. Section of the sympathetic supplying the ear causes a deep blush to suffuse the whole organ, showing an increase of blood supply from an enlargement of the calibre of the blood-vessels. On the other hand, irritation of the cut end of the sympathetic by an electric discharge immediately produces an unnatural pallor in the pinna of the ear. Now, a considerable portion of the blood supply of the membrane of the drum is derived from an artery that leaves the internal carotid and proceeds by a very short course to its destination, being thus closely connected with a large arterial trunk; this small artery possesses very favorable circumstances for a speedy augmentation of its blood supply. Now, the sympathetic supplying the carotid plexus comes largely from the otic ganglion, which ganglion controls the circulation of this part. On the other hand, the inferior dental nerve supplying the teeth and gums also communicates with this ganglion. We thus arrive at a direct channel of nerve communication through the otic ganglion, between the source of irritation, the tooth, and the vascular supply of the drumhead. Therefore, any irritation of the nerve in the vicinity of the tooth passes upwards to the otic ganglion, from which it is reflected to the nerves governing the blood supply of the drum, the vessels of which become largely distended, and if the irritation be sufficiently prolonged, an effusion takes place into the tissues of the drum, and finally, the formation of pus results. This disturbance of the vessels soon extends deeper and pus distends the internal ear, causing perhaps rupture of the drum, or terminating in convulsions and death. It will thus be clear that earache, under whatever circumstances it occurs, whether resulting from tooth diseases or any other cause is never a trivial accident to be treated with a boiled onion or warm oil. The correct treatment may be roughly summarised under two heads:— 1st. Removal of the cause, as by lancing a swollen gum or removing a decaying tooth. 2nd. By the treatment of the effects, which will vary according to the stage at which they have arrived. Thus, if there is only a hyperæmia, apply a leech inside the pinna of the ear, and give small doses of tincture of aconite frequently, to diminish the heart's action, following this up with syringing the ear with warm water. If the disease has gone on to the formation of matter, we must follow the ordinary rule and give exit to it either by puncturing the drum or opening the mastoid cells.

Mechanical Dentistry.

CLASPS AS FASTENINGS FOR ARTIFICIAL DENTURES.

By J. W. CLOWES, D.D.S., New York.

THAN these, no items of professional practice have received more of my attention, and I am convinced, by long experience, of their entire reliability. Their sphere of usefulness, confined as they are to partial sets, is limited. Having a reputation as *harm-doers* in the past, I must needs be cautious in disclosing their excellence. To this end, the thing to be fastened as well as its fastening must be discussed; for a well-fitting plate and clasp must ever be united to attain success. *In my practice, narrow but doubled gold plates are used,* composed of what may be called the base and stiffener. I employ two castings and two counters. The base and stiffener are separately struck up and swaged. They are placed together and swaged again. Joined by a fine solder, they are again swaged, and all this between the same casting and its counter. Annealing should always precede swaging. Having advanced thus far by means explained, I now bring forth my *reserved* casting and make the impress of the unchanged form upon my plate. My attention is next given to the *fitting* of the clasps. Several important points are to be considered in this connection,—*a good hold is to be gained, damage to the natural teeth avoided, and ease secured in applying, wearing and removing the plate.* These requisites are absent while the natural teeth retain their original form.

If the clasps surrounding the teeth merely touch the centre of protuberance the hold is slight and unstable, while the liability to injure is greatly increased by retention of extraneous deposits. *Hence is shown the necessity for plain surfaces in the application of clasps.* Approximal sides of all teeth which I intend to clasp are carefully and skilfully flattened with the file. Toughness and elasticity are essential qualities of a good clasp, and they are obtained by the alloyment, in due proportion, of gold with platinum. When about to fit clasps I take the measure of the parts to be clasped with a piece of sheet lead. This pattern enables me to approximate pretty nearly to the length and width which I desire, and prevents waste of material. The gold, having been cut according to its pattern, is rounded and

smoothed on its edges, and when annealed, is ready to be bent and shaped for use.

My clasp fitting is done entirely with pliers upon the teeth as they stand in the mouth, and my reliance is never upon any form of them which may be gained by impressions in plaster or wax.

The part of a clasp first to be fitted should turn the posterior buccal corner of the tooth, passing along its approximal and flattened side to wind around its lingual swell, thence straight across its anterior face to a point just short of ocular perception. *The turn at the place of beginning should be long enough to embrace the corner and enable the patient, by catching it with his finger nail, to remove the plate from the mouth.* Clasps should never be allowed to irritate and inflame the gums.

Having adjusted the plate to the gums and the clasp to the teeth, our next effort must be to *connect them*. If we succeed in this without in any way impairing the excellence of the work already accomplished, we may indeed rejoice. *The plate fits and the clasps fit, but the momentous question is will they fit when united?* I have seen the day when to be able, confidently, to say yes to this would have been manna to my soul! Groping in darkness, attended by defeat, is hard upon the constitution, and, looking back to my early days of professional trial, I confess to having often endured the rack from this very inability to *make two things fit when together just as well as when apart*.

With the plate and clasp in position we proceed to take a *try-plate impression*. This may be obtained in plaster or wax. I prefer wax. For this purpose, if I have taken the original impression in wax, it is preserved in the pan until needed. This impression should be softened with warm water, retaining a sufficiency thereof in the clasp-teeth walls to render them softer than the rest. Now insert the plastic wax; with the thumb and two fingers of each hand apply it; steady, now; exert no undue pressure on any one part, but firmly and evenly do the work. Withdraw it carefully and without rocking. *You have it now,—a try-plate impression, the very key, if you know how to use it, to ultimate success.*

With the impression in your hand what next? Remove the plate and clasps from the mouth and restore them to their impressions in the wax—but, softly, the clasps first and after them the plate. But—softly again—you must not attempt to replace the clasps in the wax until you have expanded them with the pliers to an easy fit upon the teeth,—*a fit so easy that you may put on and take off, and feel that it is without stricture and without friction.* With delicate tweezers la

them now—gently—in their waxy beds. *As they lie there, harmonious in relation, harmonious in place, you may well exclaim, beautiful! beautiful!!* Having filled up your impression with sand, plaster, and asbestos, and given an hour for setting, fasten your plate and clasps together with *hard* solder, and try them in the mouth. If you have been faithful to my directions you will know how much like true satisfaction a plate and clasps may be. With this achieved, pause not until the lost in nature is replaced by the restored in art, and the denture, once more complete, exists, a thing of use and beauty.—*Dental Cosmos.*

Hospital Reports and Case-Book.

PULPITIS AND PERIOSTITIS.

By J. J. MUSGRAVE, L.D.S. Glas.

I FEAR, from the number of cases I have met with, that the treatment of inflammation and other affections of the dental pulp is but little understood, and too frequently but carelessly undertaken, and thus resulting in the untimely sacrifice of teeth which, if diagnosed with a little more skill, and with the application of treatment suited to the diseased condition, could have been saved and rendered useful for their important functions; although no doubt the hasty determination of some patients, too eager to lose an offending tooth rather than endure the necessary remedial measures, is exceedingly trying to the equanimity of a Dental surgeon who desires to act conscientiously and with skilful results. However, to show that my introductory remarks forcibly apply to a certain number of registered practitioners, I will mention two typical cases.

CASE 1.—A lady consulted me a short time since about an aching and much decayed lower molar, and said that she had been to a Dentist a few days before to have the “nerve destroyed” with the intention of having the tooth “stopped,” but that since the introduction of some substance which he had cemented in the cavity, her tortures had been indescribably severe. On the removal of the resinous wool and examining the painful tooth, it was not difficult to account for

the aggravated symptoms of my new patient's suffering, for evidently a very stupid and common mistake had been committed, *i.e.*, "*applying an escharotic for devitalising the pulp without careful attention that the pulp was thoroughly exposed.*" There was a thin layer of discoloured dentine and some *débris* of food (most likely mistaken for pus, resulting from a chronically inflamed pulp) over the pulp, consequently the arsenical application only reached it slowly and by infiltration. My treatment was to remove the layer of dentine and, on being satisfied that the alveolar dental periosteum was not sympathising, I applied a small quantity of "Clarke's pulp destroyer" (which is the most perfect and painless article of this description that I have ever used, and is vastly superior to arsenic and morphia, which I formerly used, and which, by the free acid it generally contained, was often productive of much irritation), and sealed it up with a pledget of wool dipped in an alcoholic solution of benzoin, directing my patient to call next day, which she did, saying that she had been free from pain. I reamed out the canals, filled them with wool dipped in a thin paste of "Fletcher's porcelain," and finished the crown with amalgam.

CASE 2.—A medical man called in extreme agony from acute periostitis of an upper bicuspid, which was much enhanced by the blundering of one who had certainly more experience in the workroom than in the surgery, but who, on starting for himself, made use of the title "Dental Surgeon" on his door-plate, and thus led the medical man to believe that he was qualified. This eminently skilful practitioner had applied arsenic to an empty pulp cavity in a tooth whose periodontum was acutely inflamed. This case I relieved by clearing out the pulp cavity as well as I was able, and injecting a few drops of tincture of aconite, also dressing the canal with the same on wool and painting it on the surrounding gum, giving ten minims in water to be taken internally.

1, St. Domingo Vale, Liverpool.

MONTHLY REPORT OF CASES TREATED AT THE
DENTAL HOSPITAL OF LONDON,
FROM MARCH 1ST TO MARCH 31ST, 1881.

Extractions	{ Children under 14	566
	{ Adults	829
	{ Under Nitrous Oxide	474
Gold Stoppings		160
White Foil ditto		21
Plastic ditto		449
Irregularities of the Teeth treated mechanically		101
Miscellaneous Cases		423
Advice Cases		183
Total.....		3206

R. GILES BRADSHAW,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE
NATIONAL DENTAL HOSPITAL,
FROM MARCH 1ST TO MARCH 31ST, 1881.

Number of Patients attended	1535	
Extractions {	Children under 14.....	352
	Adults.....	690
	Under Nitrous Oxide	87
Gold Stoppings	121	
Sheets of Gold used, independent of Pellets.....	108	
Other Stoppings	624	
Advice and Scaling	102	
Irregularities of the Teeth	45	
Miscellaneous.....	107	
<hr/>		
Total operations	2128	

R. DESMOND ASHBY,
House Surgeon.

British Journal of Dental Science.

LONDON, MAY 1, 1881.

THE question as to whether or not Dental practitioners are entitled to prescribe for their patients, though it may possess in the abstract some interest for members of the profession, is, we believe, practically a matter of very little importance. Still, as a well-known member of the Odontological Society considered it his duty to protest strongly at the last meeting against what he believed to be a dangerous innovation, the point may perhaps be worthy of a little consideration.

Whether a Dental surgeon actually has a right to prescribe could only be decided by ascertaining whether he could recover payment for such services in a court of law ; and that is a question which, so far as we are aware, has not yet arisen, and which, if it should arise, will not be without its difficulties. Even in the case of medical practitioners the question is not without its complications. Thus, it has been decided that a practitioner who holds only a surgical qualification cannot recover for advice given in a purely medical case, and learned county court judges have arrived at some rather strange conclusions regarding what are, and what are not, medical cases. It is probable that this would hold good in the case of the Dental surgeon, and it might be held that he was entitled to payment for prescribing sulphide of calcium in a case of alveolar abscess as being clearly surgical, but that as neuralgia was medical, having cured a patient with gelseminum gave him no legal claim.

But, granting the right, we are rather inclined to agree with Mr. Hutchinson that Dental practitioners will generally find it best to avoid prescribing as much as possible. We do not mean by this that they should not recommend a saline purge to a patient with threatened periostitis, or a dose of gelseminum to one who is suffering from a reflex neuralgia, but that in cases where Dental troubles are obviously caused

or complicated by a morbid constitutional condition, it is generally better either to refer the patient at once to his medical attendant or to treat him in conjunction with the latter. We know that patients sometimes appear to resent being thus disposed of, and that there is rather a temptation, especially to a young man, to show that the advice was not given on account of ignorance or from inability to do what was expected. But in most instances the practitioner will find that the patient's real idea is economy, that he thinks he can get advice gratis from his Dentist instead of paying his doctor, and our young friend will find himself saddled with a patient who will prove a source of trouble rather than profit.

Although we do not wish in the least to underrate the importance of constitutional treatment, it must be evident that the reputation of a Dental surgeon must always rest mainly on his technical skill. A skilful operator will obtain much better results if he pays due attention to the constitutional tendencies of his patients, but no amount of attention to these details will bring success to one who is not skilful. What is really required is that the Dental surgeon should be capable of recognising the signs of these morbid tendencies when he sees them, and should thus be able to decide how far the resources of his own art will suffice to give relief or to recognise the cause of an occasional failure.

The point to which Mr. Hutchinson specially directed attention is also worth considering. Even if our connection with the medical profession is not quite as intimate as that which exists between the solicitor and barrister, still it is always worth our while to cultivate friendly relations with our medical neighbours, and to avoid anything which may give rise to any feeling of suspicion or jealousy. But apart from this, we believe it to be a fact that, as was pointed out recently in this Journal by a highly respected contributor, that the longer a man has been in practice the less inclined is he to meddle actively with "apothecaryism and physicking," and that this is a proof that to attend to one's own business pays best in the long run.

Literary Notices and Selections.

ON THE VALUE OF CERTAIN REMEDIES USED IN THE CONSTITUTIONAL TREATMENT OF INFLAMMATORY CONDITIONS OF THE VASCULAR TOOTH STRUCTURES, AND OF NEURALGIA ARISING THEREFROM.

Abstract of a paper read before the Odontological Society of Great Britain.

By JAMES STOCKEN, L.D.S. Eng.,
Dental Surgeon to the National Dental Hospital, &c.

MR. PRESIDENT AND GENTLEMEN,—The subject to which I am privileged to call your attention this evening is one of interest, and well worthy our consideration; for I cannot but think that, in the past, we have too much neglected to avail ourselves of the assistance which remedies acting through the system afford us.

The remedies to which I especially desire to direct attention are chloride of ammonium, sulphide of calcium, and gelsemium. I have selected these because the knowledge of their action is not so general as that of many other agents. I have used these medicines alone and conjointly, and have found them of the greatest service in cases of periostitis—either dental or alveolar—of affections of the pulp, and of neuralgia of dental origin. As these several pathological conditions are pretty well known to you all, it is not necessary for me to do more than briefly refer to them.

In the words of Mr. Tomes, “As to neuralgia, when pain is felt in a tooth, we describe it as odontalgia; but when the tooth is free from pain, or the suffering in other parts is so great as to distract attention from the localised pain in the tooth, we speak of it as neuralgia. From a pathological point of view, the disease neuralgia probably has no existence; it is but a symptom indicative of a lesion at some point, which may be discoverable, or may be hidden from our view; and it is not indicative of any one particular lesion, but of a great variety of morbid conditions. Nor, from a pathological point of view, are we justified in separating odontalgia and neuralgia from one another, seeing that the two arise oftentimes from precisely the same cause.”

In treating neuralgia, we as Dentists have chiefly to deal with the trifacial nerve, and particularly with its second and third divisions. But it is necessary to keep in view the

territory of the peripheral ramifications of other nerves, the points of their origin, together with their numerous peripheral, ganglionic, and central communications, in order to appreciate fully the complicated morbid phenomena of nerve-life.

It is very generally supposed that no morbid changes in the nerve can be recognised in the majority of cases of neuralgia; but Wedl, in examining some nerves which had been resected by Schub, found disordered conditions both in the neurilemma and in the nerve-tubes. In the former, an hyperæmic swelling occurs, and the interstitial connective tissue of the nerve-tubes acquires a finely granular cloudiness; in the latter, a finely granular metamorphosis of the medulla is observed. In old chronic cases, pigmented granular spots were found; and in one case he distinctly made out that the axis-cylinder was in a measure obliterated by strongly refractive masses. These were entirely soluble in hydrochloric acid, and therefore were calcareous grains. They were also found interspersed in the interstitial connective tissue.

We may, then, divide these disorders of the nerves into—disorders of sensibility without local disease; inflammation of the nerves; and, thirdly, a disintegration or degeneration.

In all these pathological conditions the first cause appears to be an excessive blood supply. One or more of the remedies to which I hope presently to direct your attention have the power to modify or suppress that supply, and thus help to restore the parts to their normal condition.

The causes for these conditions may be ascribed to almost every diseased condition which affects the teeth, including periostitis in any of the bony canals through which the nerve trunks pass, or inflammation of the mucous membrane, or of the periosteum of the antrum.

Presently I shall speak of the physiological and therapeutical effects, as also of my experience of the medicines under observation in this paper, and I think we shall find in them agents to meet those pathological conditions, so far, at all events, as irritability and inflammation of the nerves under consideration go.

We have next to deal with morbid conditions of the pulp. Under this head we include irritation, acute and chronic inflammation. With the causes which produce these conditions it is not within the scope of this paper to consider.

In selecting our remedy it is very necessary to distinguish between hyperæsthesia and inflammation, always remembering the difficulties attending the recognition of an idiopathic inflammation, and especially those cases in which there is

no caries, or, at least, no visible caries. An inflammation of the periosteum of the fang of a tooth may be misinterpreted as one of the pulp; another difficulty lies in distinguishing between inflammation and the hyperæsthesia of the pulp which is occasioned by a congestive condition. Pain that is due to irritation, or to chronic inflammation of the pulp, is rarely continuous, and partakes more or less of a neuralgic character, so that the patient is often quite unable to point out the affected tooth. It is, more often than not, periodic in its access, and is generally absent at the periods of full vigour. Cold applications, which diminish the pains induced by inflammation, increase them in these cases.

As inflammation of the several tissues, whether of the pulp or of periosteum, require similar constitutional treatment, I will not trouble you by capitulating the symptoms of these various pathological conditions; neither need I say anything with reference to alveolar abscess and necrosis.

Chloride of Ammonium.

Syn. Hydrochlorate or muriate of ammonia. Sal ammoniac.

A salt obtained by neutralising ammonia with hydrochloric acid. Its action on the general system is that of a liquefacient and resolvent; it promotes secretion and exhalation generally; softens and loosens textures; checks phlegmonous inflammation; lessens inflammatory effusions and promotes their reabsorption. It operates like the more powerful alterative agents, but is less liquefacient and resolvent on the organic tissues, and less stimulant to the lymphatic vessels, than mercury. Solutions of chloride of ammonium, in large doses, injected into the veins of animals generally caused convulsions, sometimes paralysis and death, thus attesting its action on the nervous system.

Pereira asserts that the resolvent operation of these medicines is usually explained by referring it to an augmented activity of the absorbents. But this explanation is imperfect, and does not account for all the phenomena. The effect is ascribable to a change in the nutrition of the parts affected, and Dr. Anstie ('Practitioner,' December, 1868) characterises it "a pure tonic stimulant to sensitive nerves, raising them to a level of tense vitality *too high* for the explosive perturbations which, when carried to the brain, are translated as *pain*, and to the vaso-motor system, directly inciting to a superior tone of the systemic vessels which puts an end to that exaggerated passive congestion of viscera which is known to be fatal to the healthy performance of the function of secretion."

Under the name of the "Facial Neuralgia of the Young," including under this term what is often described as bilious and hysterical headaches, Dr. Anstie states that this salt (gr. x-xx), if given early enough, seldom fails to cut short, or greatly to mitigate the attack.

Ringer says, many eminently practical men go so far as to assert that in this painful affection they require no new remedy, since chloride of ammonium so rarely fails; and Dr. A. Lindsay considers it deserving of a high place amongst our more valuable alterative, resolvent, and liquefacient remedies.

In facial neuralgia and periostitis in doses of 30 grs. three times a day it usually gives relief after four or five doses, otherwise it is of no use to continue it. Some advise that it should not be given in periostitis until suppuration has set in.

Sulphide of Calcium, Ca. S.

Syn. Canton's phosphorus, mono-sulphide of calcium, sulphuret of calcium.

Characters.—A pale, brownish-white, amorphous powder, with hepatic taste and alkaline reaction, sparingly soluble in water, in which it slowly decomposes, evolving sulphuretted hydrogen. Exposed to the air, more especially damp air, it absorbs oxygen. When very freshly prepared it is phosphorescent, hence its old name, *Canton's Phosphorus*.

Dr. Ringer, in speaking of the sulphides, designates them as remedies which influence the suppurative process in a marked and manifest manner. They appear to possess the property of preventing and arresting suppuration. Thus, in inflammation threatening to end in suppuration, they reduce the inflammation and avert the formation of pus. After the formation of pus, the influence of this group on the suppurative process is still more conspicuous; then the sulphides hasten maturation considerably, whilst, at the same time, they diminish and circumscribe the inflammation, promote the passage of the pus to the surface, and the evacuation of the abscess.

He gives as a typical example of the efficacy of the sulphide of calcium the case of a deep-seated abscess which might take three or four weeks to make its way to the surface, or be fit to be opened; on giving in such a case the one tenth of a grain of sulphide of calcium mixed with a grain of sugar of milk, every hour or two, the results are most striking. The pain and constitutional disturbance begin to diminish, the swelling becomes smaller, the pus

reaches the surface in four or five days, leaving, when it is evacuated, a *benign* wound which quickly heals.

It may be urged that it is difficult to imagine how these remedies can produce effects so different and apparently opposite, as the dispersion of inflammation in one case and the expulsion of pus in the other; but poultices and hot fomentation both subdue inflammation and hasten the evacuation of pus.

The sulphide should be continued until the discharge has nearly ceased, and till stimulating applications are needed, when tonics must replace the sulphides.

It was in consequence of my reading Ringer's article on the sulphides that I decided to try the sulphide of calcium in cases of periostitis and alveolar abscess. The results have been satisfactory in the highest degree. I shall give the details of two or three cases, as typical of many in which I have given this medicine.

CASE 1. *Incipient alveolar abscess*.—The tooth affected was the first left upper bicuspid. The face was slightly swollen, the tooth painful on occlusion, and somewhat loose. These abnormal symptoms began to subside soon after the commencement of the treatment, and no abscess resulted. The treatment consisted in taking the first day one tenth of a grain of the sulphide in the form of pill every two hours, and the following two days one every four and six hours.

CASE 2. *Chronic periostitis*.—This case was one of a non-carious tooth, but through previous attacks of periostitis and absorption of the alveolus it occasionally became loose and very painful, its vitality was considerably impaired, and it was subsequently found to be slightly exostosed.

The sulphide of calcium pills always (if taken in time) checked the coming attack, but as it was a case in which cure was impossible, I at last induced my patient to allow me to remove it.

CASE 3. *Chronic alveolar abscess, with necrosis of two years' standing*.—In this case the action of this medicine was most strongly evidenced. This patient came to me complaining of tenderness in a lower central incisor, and of a constant discharge. He informed me that ten years before he had fallen, and in doing so he believed he had struck this tooth; from that time it became discoloured, but, except on one occasion, it had never troubled him until two years before he came to me; during the whole of that time there had been an almost daily discharge through a sinus corresponding to the apex of the fang. I prescribed the sulphide of calcium pills (one tenth of a grain) every two hours at first, and subsequently three times a day. The discharge

entirely ceased. But upon a cessation of the medicine it returned, and again ceased upon a resumption of it, thus proving beyond question its action upon the system.

I may mention that the sulphide of calcium is a very unstable compound, and unless freshly prepared, or prepared in such a form that the air and moisture cannot affect it, it is perfectly inert. Mr. Martindale, of New Cavendish Street, prepares it in the form of small pills, each containing one tenth of a grain; these pills are coated, and will retain their active properties any length of time.

Gelsemium, sometimes called Gelseminum, or the Yellow Jessamine.

This twining perennial belongs to the figwort order—a native of North and South America.

The active principle of this plant is an alkaloid, called gelsemia, upon which its efficiency depends; it resides in all parts of the plant, but chiefly in the root. The dose of the alkaloid is from $\frac{1}{2}$ to 2 grains. The tincture is prepared by digesting 1 oz. of the root in 10 oz. proof spirit for a week, the dose of which is 10 to 20 minims.

It is readily absorbed into the blood, and exercises a sedative action on the nervous system; like conium it is a paralyser; but, unlike it in its mode of action, the paralysis does not commence at the periphery. It destroys muscular irritability, and impairs the sensibility of the sensory nerves. In large doses it is poisonous, causing great prostration, nausea, vomiting, dilatation of the pupils, more or less loss of sight, inability to speak or move, coldness of the surface, paralysis of the muscles of respiration, and death by apnoea.

Antidote.—Ammonia (Sal volatile).

Drs. Ringer and Murrel have made numerous observations regarding the physiological action of this drug, and the condensed accounts were published in the 'Lancet' for 1876 and 1877; from them I gather most of what I shall have to say relative to this medicine.

The first effects of gelsemium, when not given in poisonous doses, is upon the eyes and brows, producing pain in the brows, followed by giddiness, then by pain in the eyeballs, and soon after by dimness of sight. Larger doses produce double vision, a sensation of great heaviness in or under the upper eyelids, with somewhat contracted pupils. A still larger dose causes drooping of the upper lid. The patient next complains of weakness in his legs, and, Dr. Ringer here says, "We have never pushed the drug beyond the production of this symptom;" when decidedly under its influence

the patient is pale, with a heavy, sleepy look. The experiments of Drs. Ringer and Burdon Sanderson convinced them that this drug produced little if any effect upon the circulation; that it exerted no influence on the blood pressure.

Dr. Ringer says, in answer to the question, Is the paralysis due to its influence on the brain, the cord, motor nerves, or the muscles? "it paralyses the spinal cord, the motor nerves and the muscles being unaffected.

"That tetanus is due to the action of the poison on the cord; the paralysis of the cord always precedes the tetanus."

Its power as a paralyser is undoubted. I remember the case of a gentleman, a patient of a medical friend of mine, who was greatly alarmed in consequence of a numbness of his arm; the assurance that it was the effect of the medicine and would soon pass off, quieted his fears.

Some persons are much more susceptible to its influence than others. The symptoms come on early and soon subside, generally in half an hour, except in those cases in which the doses have frequently been repeated. It seems to have a special action on the nerve supplying the teeth and alveolar processes. Some patients under its influence complain of a numb pain of the gums, and a little tenderness along the teeth and edges of the gums, but no loss of sensation in the parts.

Dr. Ringer speaks of having tried gelsemium with decided success in several cases of neuralgia of the dental nerves, even when the teeth were carious; that in several cases the necessary dose to relieve pain produced much giddiness, haziness, and sometimes sleepiness. In some instances 10 minims three times a day has produced complete ptosis of the neuralgic eye, lasting an hour or longer. I think the strength used by Dr. Ringer must have been stronger than the formula given by Squire in his 'Companion to the British Pharmacopœia,' that is, one part of the root and ten of spirit. That is the strength I have used, and have usually given it to adults in 15 minim doses; in some of my cases it has produced a feeling of inebriation, but nothing more.

The case recently reported in the 'British Journal of Dental Science' is a striking confirmation of Ringer's assertions.

The type of cases in my own practice, in which I have found it serviceable, in addition to those of pure and unmistakable neuralgia, are those of recently stopped teeth, where, through the thinness of the dentine intervening between the filling material and the pulp, the thermal changes have set up irritation, leading probably to slight

congestion, a dose or two of gelsemium will generally relieve it, and in a very short time. One case I remember, the tooth had been stopped some few days; the patient came with a full determination to have the tooth extracted. Not wishing to undo my work, I prescribed the gelsemium; she assured me that in ten minutes the pain ceased, and from that time to the present she has had no return. In fact, I think in all cases of irritation of the fifth pair, we may expect, if not a cure, at least considerable relief.

To sum up the matter I would say: in pure neuralgia, gelsemium, with or without aconite; in congestion or inflammation, either of the pulp or periosteum, I would combine with these the chloride of ammonium. In chronic periostitis, with suppuration, I would resort to the sulphide of calcium.—*Trans. of Odontological Society of Great Britain.*

ON THE TRANSPLANTATION OF TEETH.

By Dr. TH. DAVID.

(From the 'Gazette Odontologique.')

TRANSPLANTATION, by which we mean the grafting of a tooth into an alveolus other than that to which it properly belongs, is an operation of very ancient date. It is mentioned by the famous Albucasis, who wrote in the eleventh century, and is more fully described by Ambrose Paré, who records the first tolerably well authenticated case thus:—"I heard it reported by a credible person that he saw a lady of the prime nobility, who instead of a rotten tooth she drew, made a sound tooth, drawn from one of her waiting maids at the same time, to be substituted and inserted; which tooth in process of time taking root, as it were, grew so firm that she could chew upon it as well as upon any of the rest. But, as I formerly said, I have this but by hearsay."* Later on it was again suggested by Hunter, and actually practised by Franchard, Bourdet, Jourdain, B. Bell, and others. It bid fair at that time to become a recognised surgical operation, for the last-named author, after describing the necessary steps, adds that "you should always have in readiness several individuals who are willing to furnish

* Works of Ambrose Paré, Chyrurgeon to Henry II, Francis II, Charles IX, and Henry III, Kings of France, Johnson's Translation, ed. of 1691, p. 388.

teeth, so that the Dentist may easily find one when required of a suitable size and shape,"

But whilst it had its supporters, it had also opponents. Amongst those who speak unfavorably of the results of the operation or dwell upon the inconveniences connected with it, may be mentioned Laforgue, Serre, Maury, and Thomas Bell, the annotator of Hunter. Others have condemned it on account of the dishonest practices to which it gave rise.*

The practicability of the operation is now beyond doubt; its advocates can point to a considerable number of recorded cases. As for the morality of the operation, that is a matter which concerns the patient more than the surgeon. At all events, the means by which we have ourselves obtained teeth for this purpose, and which we advise others to follow, are quite free from any suspicion of illegality. The only serious objection which can be brought against transplantation is that it may be the means of spreading certain infectious diseases. William Watson, Littzon, Hamilton, and Kuhn have recorded cases in which the contagion of syphilis was conveyed in this way. But, admitting that this is possible, it is always possible for the surgeon to guard against it by taking proper precautions, as is done in the case of vaccination.

By what means, then, do teeth thus removed from one place to another become fixed in their new position? We believe that it has been fully demonstrated that this is effected by a process closely allied to that which is known as "immediate union," or "union by first intention." A transplanted tooth is not deprived of its vitality; it re-forms, in its new situation, the same vital connection which before united it to the body from which it was taken. In most cases the union takes place through the medium of the alveolo-dental periosteum, and in some also through the medium of the periosteum, and, in young teeth, of the pulp; and the vitality of these structures is a necessary condition for the success of the operation.

Numerous experiments have been made with the view of investigating the steps of this process. Such were the transplantation of the teeth of men and animals into cock's combs, as performed by Hunter and Phillippeaux. This experiment was certainly not chosen because the conditions were specially favorable for success, since the tooth was transplanted into tissues altogether differing in kind from those to which it had been accustomed. Still it was possible

* It was believed that Dentists deprived Italian boys and others of sound teeth, either by force or stratagem, in order to furnish the mouths of wealthy clients.

in this way to investigate the anatomical relations which were formed, and besides, success under these circumstances was so conclusive that no further experiments were required. Experiments in transplantation and transposition of teeth have, however, been made on dogs by Wiseman and Mitscherlich.

We shall only consider here the removal of teeth from one alveolus to another. This may be performed under two different conditions.

1. A tooth may be removed from one alveolus to another in the same subject; this we shall speak of as *transposition*.

2. A tooth may be removed from the mouth of one individual to that of another; this is *transplantation* properly so-called.

Transplantation from an animal to the human mouth has never been attempted as far as we are aware. There is no animal which is capable of furnishing teeth resembling our own either as regards form or size. It might, however, be possible to replace by this means useless and condemned roots by healthy ones, which would serve as a firm base on which artificial teeth might be pivoted. But practically the transplantation and transposition of *human* teeth alone concern us.

The conditions under which transposition can be practised with advantage are necessarily restricted. The exchange is scarcely ever carried out except in the case of front teeth, and even then it may not be apparent, at first sight, what can be the advantage of making one gap to fill another. Nevertheless, under certain circumstances this may be carried out with advantage to both dentures. The lower front teeth seldom decay; they do not therefore often require to be replaced. But they are often crowded out of line by want of space, and when the irregularity is very marked it may be good policy to sacrifice one in order to allow of the proper arrangement of the rest. The tooth thus extracted may then be turned to account in another place.

In this way the upper lateral incisors may be replaced by any of the six lower front teeth, but especially by the lower laterals; for, although these are larger than the centrals, they are generally as nearly as possible the same size as their upper antagonists. The upper central incisors, on account of their marked individuality, cannot be replaced by any other tooth, and the canines are so seldom affected with caries that they scarcely ever give occasion for the performance of this operation.

In some cases we should be disposed to go further than we

have indicated, and to extract one of the lower incisors, even in the absence of any irregularity, in order to obtain a graft. The gap thus made in the lower teeth is soon filled up, either spontaneously or with the help of very simple means, by the coming together of the neighbouring teeth. In this way a transplantation, which would otherwise have been impossible owing to the difficulty of obtaining a suitable tooth, may be carried out without any great inconvenience to the person operated on. My friend Dr. Pietkiewicz has quite recently replaced with success an upper lateral by a lower incisor belonging to the same individual.

Theoretically transplantation should be possible in the case of any of the teeth, but owing to the difficulty of finding two teeth with fangs of the same size, shape, and direction, the operation is practically only possible in the case of single-root teeth. The replacing tooth should, of course, resemble the original as closely as possible. For preference the root should be a little shorter; still one with a root which is slightly larger may be made to serve, either by resecting it, or by pressing it forcibly into its new alveolus, as I have in several instances been obliged to do.

The circumstances under which it is permissible to take out a tooth for this purpose have been already mentioned, viz. the various cases of irregularity of the dental arch, which are curable by the extraction of one or more teeth. The teeth which can most easily be obtained in this way are the upper bicuspid, since it is often necessary to extract the first bicuspid in order to make room for the canine. The lateral incisors can very seldom be obtained by this means, and the centrals can never be spared. The lower incisors and canines may sometimes be dispensed with, as we have already stated.

It was suggested long ago by Ambrose Paré that the teeth of a corpse recently deceased might be made use of for the purpose of transplantation. From a physiological point of view such a proceeding would present no difficulties, but popular prejudices would oppose so strong an objection that it is scarcely to be thought of.

Some authors, Mitscherlich amongst others, have asserted that teeth which are actually dead may become consolidated in the jaw. According to them the teeth become fixed by the following means. Offshoots of newly-formed bone spring out from the wall of the alveolus, and grasp the transplanted tooth, the surface of which may be actually hollowed out by them. We can offer no experience on this point, but from *à priori* reasoning we should expect that the presence of a foreign body in the alveolus would give rise to an attempt

at elimination, and would set up suppuration. This, at least, has been the cause of all the unsuccessful attempts at transplantation both in our own practice and that of Dr. Magitôt.

The indications for transplantation are not easy to define. Extensive destruction of the crown of the tooth would alone suggest the advisability of the operation, but the decision, as we have already said, must rest rather with the patient than with the surgeon. Besides cases of caries which cannot be remedied by ordinary means, we may mention cases in which a tooth has been broken by violence or in which one has been knocked out and lost. Obstinate periostitis may often be successfully treated by replantation of the affected tooth after resection of the end of the root, but if, owing to extensive disease of the fang, the failure of this operation appears probable transplantation may be had recourse to.

(To be continued.)

ON THE SYMPATHY EXISTING BETWEEN THE EAR AND THE TEETH.

It has long been known and recorded in medical literature, that a peculiar reflex sympathy exists between the ear and the larynx and the ear and the teeth. These sympathies are always annoying and usually prejudicial to the integrity of the organs implicated. As these reflex phenomena can be made to vanish if their real cause is detected, it is the purpose of this paper to call attention to and briefly describe and explain some of the forms more commonly met, and show how these manifestations of disease can be quelled. . . .

A case of irritation reflected from the teeth to the ear may present itself in this way:

A brother practitioner of medicine asks for treatment of hardness of hearing, tinnitus, and a peculiar sense of discomfort in the left ear. His statement is that he believes he may have aural catarrh, and this view is strengthened somewhat by the appearance of the membrana tympani, which is lusterless, opaque, and retracted. But nothing being said about the teeth, the usual treatment for aural catarrh is instituted, and the patient is apparently better for a short time.

In the course of a year all the old symptoms are worse, and some new ones, more disagreeable, are added. These

are considerable neuralgia in the post-auricular region, with a constant and pounding tinnitus, which is likened to the noise of a trip-hammer, synchronous with the pulse, and a peculiar tapping noise, not synchronous with the pulse. The latter is about ninety times a minute, and seems to the patient to be attended with motion in the ear; it seems "as though some power pulled on a little string fastened to his drum." There are also laryngeal irritations in the form of ear-cough, which, though not excessive, seem to the patient to depend on the continued annoyances in the ear. *All of these symptoms came on and kept up during excessive pain in the first molar tooth in the upper maxilla on the same side.*

The patient now states that ten years before this molar tooth require filling, that ever since more or less discomfort has been experienced in and around it, that inflammation in its neighbourhood has frequently occurred, with more or less intensity, and the aural symptoms had first shown themselves about six months after the tooth was filled. He also states that all dental disturbances ever since have been attended by aural discomforts, which have gradually increased until the final attack, three months ago, when both aural and dental sufferings became nearly intolerable, an abscess formed near the tooth, and at last the tooth was extracted, *with instantaneous relief from all forms of tinnitus, tapping sounds, and neuralgia in the ear, the ear-cough, which had been marked up to this time, ceasing, and the hearing becoming very much better.* The tooth shows great and peculiar disease at the root, and its socket is necrosed, so that its cavity is thrown into that of the socket of the second molar behind it, by destruction of the partition between them.

Let us trace the connection between the diseased teeth and the disturbed condition of the ear, which it is manifest must be a purely nervous one.

The three prominent symptoms in the ear were tinnitus, tapping sounds, apparently combined with muscular movements in the ear, and neuralgia. To explain the tinnitus, we first recall the fact that the teeth and sockets diseased in this case are supplied by the posterior dental branches of the superior maxillary nerve, an important division of the trifacial nerve. Then we bear in mind that this nerve, the trifacial, supplies the sensory root to the sphenopalatine ganglion, which brings the irritation to the sympathetic tract. For the sphenopalatine ganglion is connected with the carotid plexus of the sympathetic, by means of the deep petrous branch of the pterygoid nerve. The carotid plexus is distributed to the internal carotid artery and all its branches. One of these the tympanal branch, supplies the membrana

tympani, and other branches are sent to the drum-cavity. The vaso-motor nerves, derived from the carotid plexus, controlling the calibre of these vessels, are thus brought into the circle of irritation from the teeth and gums, their inhibitory power is overcome, and dilatation of the vessels ensues; more blood than usual passes to the drum-membrane and the drum-cavity, morbid vibrations in the walls of these vessels are set up, and tinnitus is heard; for *tinnitus aurium* is nothing more than the sounds produced by abnormal vibrations in the walls of the arterioles or veinlets of the ear, or it may be the hearing of the normal movements of the blood on the part of an ear whose resonant functions are disturbed.

In order to explain the tapping sounds and the feelings of movement in the ear, it must be borne in mind that the motor root, of the sphenopalatine ganglion is derived from the facial nerve, through the Vidian, and that the facial nerve supplies a filament to the stapedius muscle. The irritation conveyed from the teeth through this ganglion, over to the facial nerve and the stapedius muscle, causes the latter to be thrown into rapid clonic spasms, thus producing the tapping sounds, and a sensation to the patient similar to that of "pulling on his drum with a string."

It is not uncommon for pain in one part of a sensory nerve-tract to be attended by pain in a neighbouring branch of the same parent nerve. Hence, in this case, besides pain in the dental branches of the superior maxillary nerve, directly irritated by diseased teeth and gums, there has been experienced *neuralgia* in the temporo-malar branch of the maxillary nerve. The ear-cough experienced by the patient must have been due to a reflection of the dental irritation over the sphenopalatine branches of the superior maxillary nerve, to the sphenopalatine ganglion, thence through the Vidian, over the facial nerve to the auricular branch of the pneumogastric nerve, which is connected with the facial by a branch from the latter nerve at its exit from the stylo-mastoid foramen. Having thus reached the tract of the pneumogastric, the reflection passes by the motor fibres of the pneumogastric, through the superior laryngeal nerve, to the crico-thyroid muscle, which is thrown into reflex spasm, constituting cough.

It is thus seen how some of the most common aural symptoms may be purely reflex in their origin, very distressing while they last, quite intractable unless their cause is fully recognised, but remediable when their causation is understood.—CHARLES H. BURNETT, M.D., in the *American Specialist and Intelligencer*.

ON THE TREATMENT OF CLOSURE OF THE JAWS.

By W. DUNNETT SPANTON, M.R.C.S. Eng.,
Surgeon to the North Staffordshire Infirmary.

I CAN discover in works on surgery very little information on the subject of closed jaws, and still less that is satisfactory in the matter of treatment. We find the affection usually dismissed in about half a dozen lines; and yet to a limited extent the matter is of some importance, and I propose to direct attention to one method of relieving the affection which, so far as I know, has not been usually practised.

Various causes have been assigned for what Gross calls "this distressing affection," the principal being cicatrices of dense unyielding tissue caused by some form of ulceration, such as pytalism; ankylosis more or less complete, from injury, or inflammation of temporo-maxillary joints; contraction of the structures surrounding the joint, particularly the masseter and pterygoid muscles; a bony connection between the upper and lower jaw; and from pressure caused by a neighbouring tumour or enlarged glands. I do not now refer to spasmodic closure, which would seem to depend on reflex irritation, such as the eruption of wisdom teeth, tetanic spasm, &c.

In the two cases which I will very briefly notice, there appeared to be no other cause for the immovable condition other than ankylosed temporo-maxillary joints; and, as I shall presently show, this depended on a condition which would seem to be quite analogous to that of other joints, such as the knee, occurring as a sequela of certain diseases—such, *e.g.* as scarlet fever and measles. We have, in fact, to deal with a joint in which there has been inflammatory mischief at some previous time, with resulting contraction of the surrounding ligaments and tendinous structures. This consideration led me to adopt the method of treatment which is found so serviceable in dealing with a like condition in cases of stiff knee or genu valgum—that is, to divide the ligaments in such a way as to release the joint. Various objections to such a procedure will no doubt readily suggest themselves as they did to myself; but I think that in the two following cases the result justified the means.

The first is that of a girl, aged ten years, Ada M. R—, who was admitted under my care in the North Staffordshire Infirmary in April last year. About six years before she had scarlet fever, which resulted in hip-joint disease, and in a subsequent closure of the mouth, which had never been

relieved. On admission she was very thin and ill-nourished, owing to her inability to masticate food. The mouth was firmly closed, and under chloroform it was found impossible to open it, although one tooth was broken in the attempt. There were no marks of cicatrices either in the mouth or externally; the digestive muscles were fully developed, and there was no unusual rigidity of the masseter or temporal muscles, nor was there any glandular swelling or other apparent cause for the condition of the mouth. The right hip was dislocated from disease of the joint, coincident apparently with the temporo-maxillary affection, but in a perfectly quiet state. She was able to take only liquid food, or such as she could squeeze with her fingers between the teeth.

Believing that the immobility was dependent on an ankylosed state of the temporo-maxillary joints, with probable contraction of the ligaments surrounding them, and failing to make the slightest impression by means of a gag with any justifiable amount of force, I passed a very narrow tenotomy knife into the temporo-maxillary joint on each side, immediately in front of the temporal artery, and then passed it freely round the condyle of the inferior maxilla as far as I deemed prudent, dividing completely the external lateral ligament of the joint, and partially the insertion of the external pterygoid muscle, keeping the back of the knife towards the temporal, and carefully measuring the depth of incision so as to avoid the middle meningeal artery. It is not a particularly happy spot to tenotomise in, but very little hæmorrhage occurred; and as soon as this procedure was effected I found that the joints at once yielded to the gag, and the mouth could be opened to the extent of more than an inch. For a day or two some soreness was complained of, but the gag was used almost daily, and seven weeks afterwards the patient left the infirmary able to open the mouth fairly well and to masticate her food. As a result of this her general health greatly improved. She continued well, and was able to go to school, but the use of the gag from time to time was neglected, and by degrees the stiffness began to return. At the end of November she came under my care again, very much improved in health, but with the mouth closed so far as only to admit the tip of one's finger. I accordingly repeated the operation, taking care to divide the structures, especially anteriorly, more freely than I had on the former occasion; and the result has been much more marked than it was before. She can now open the mouth to some extent without assistance, and with the use of force it can be opened wide without causing pain. There is, however, very slight lateral movement.

The second case is that of a girl, aged nine, Sarah Ann B—, who was brought to me in November, 1879, for a closed mouth. She was a delicate-looking child, had been deaf from early childhood, and about two years and a half before I saw her had scarlet fever, after which the gradual closure of the jaws took place. This was naturally accompanied by a corresponding decline in her health and strength, for which her friends sought relief. The mouth was quite firmly closed, and with no legitimate amount of force could it be moved. Under chloroform I operated as in the former case, and by means of a screw gag opened the mouth freely. No untoward symptoms beyond some swelling and tenderness about the temporo-maxillary joints occurred, and by the frequent use of the gag by the patient's friends at home; she can now open her mouth sufficiently to take any kind of food, and I am glad to say is now recovering very fair lateral movement also. She can open it to the extent of more than half an inch without assistance, and is able to masticate her food thoroughly. This has led, as we hoped it would, to a corresponding improvement in her general health.

In these cases, when I found it impossible to force open the jaws, I was inclined at first to practise Esmarch's method of excising the joint, or Rizzoli's plan of dividing the ramus of the maxilla; but as I happened to see the first case in which the former operation was performed in this country by Mr. Mitchell Henry many years ago, and which resulted in a rapidly fatal issue, I was led to try the milder measures I have described; and as an alternative of the more severe operations for the relief of this troublesome affection the plan is one which is, I think, deserving of a more extended trial. I would only further suggest that it should be practised cautiously.—*Lancet*.

DENTISTRY AS A CANDIDATE FOR MEDICAL HONOURS.

WITHIN the memory of many now living, the barbers and blacksmiths in town, and the blacksmiths, local preachers, and horse trainers in the country, in common with practitioners of medicine, gave the teeth the surgical attention they received. And as Dental surgeons, these various classes held about equal rank in the popular mind, and really differed but little in merit, in their treatment of the teeth, this treatment consisting of twisting them out with the barbarous turn-key, called "pullikins," or breaking or filing off sharp projections, so that they would not wound the tongue or lips.

Often has the writer heard warm discussions as to the superiority of the leading physician of his native town and a blacksmith of the same place; and the champions of the blacksmith claimed the victory, inasmuch as the physician patronised him and his turn-key, while the smith either extracted his own teeth or sought the torturing touch of a fellow blacksmith.

In looking back over the development and progress of modern Dentistry, it will be found that nothing of importance has taken place or been discovered that, historically speaking, is not within the memory of some still living, or engaged in its practice.

The education phase of our profession is now engaging our attention to a considerable degree, and if the matter is kept thoroughly agitated it may, in a few years, do more to establish the worth and value of Dentistry than all else combined. It is worse than useless to occupy the time at Dental meetings clamouring for recognition as a "branch of medicine," or filling the journals with matter to the same effect, so long as we do nothing to deserve that recognition. There is not to the writer's knowledge a single medical college that teaches in a sufficiently thorough manner the peculiar requisites for the intelligent practice of Dental surgery. Dentistry must widen its views very materially before the profession of medicine and the public recognise its pretensions to equal respect with the time-honoured institution of medicine. All things are measured by the amount and value of the services they render to mankind. We have yet to see ourselves regarded by society in the light of "honoured practitioners of a branch of medicine." Our profession is a growing one. Its brilliant success so far has made us enthusiastic in its cause, and, we fear, too clamorous for that deep-rooted reverence which time only can secure. Like many other things in the history of American civilisation, it is the outcome of an impulse. Its development was so rapid that it burst forth upon the world in almost complete form before the many were even aware of the existence of such a profession. As it is now constituted, it is a science, the practical aspect of which is capable of many achievements, and has exhibited some triumphs. In comparing its claims for "honour" with the time-tested ones of medicine, we do not hesitate to say that Dentistry has yet much to accomplish before it is tacitly and unconsciously awarded a position co-equal with the great departments of medicine. It must abandon its system of exclusiveness in its educational institutions, and consent to become the appendage of a medical school. So long as things remain as they are, Dentistry, as

a branch of medicine, will never advance beyond its present limits. The sooner "Dental colleges," as a distinctive class, are abolished, the better it will be for the future interest and greatness of the profession. Yet, when the constantly increasing volume of medical knowledge is looked at, there does not seem any resource save that of keeping Dental education distinct and apart.

All things evolve. In the present we can see a few signs of the times. They are the adoption, by leading universities, of a "Dental department," and the founding of periodicals, broad in their principles.

When time has passed and Dentistry become a matter of public importance, we will see it recognised as a "branch" of medicine, without the egotistic clamour that is at present so rife and nauseating.—*Ohio Journal of Dental Science*.

* * * The above is remarkable as coming from the pen of a D.D.S. It may be good for us to be reminded occasionally what an upstart profession ours is; but as the surgeon, once the handicraftsman of the physician, now meets his former master on an equality, so are we, in spite of our blacksmith ancestry, even now obtaining a fair share of public recognition and honour. We have no doubt as to the future.—
ED. 'B. J. D. S.'

THE SECRET OF SUCCESS IN PRACTICE.

THE fact is more and more apparent that no one method of operating embraces all that is required to meet varying conditions. Time might be saved by conceding that diversity of gifts through different agencies often accomplish the same object. Take for instance filling teeth with gold. From first to last there has been continued discussion as to the form and application of this material. According to the transactions of the American Dental Association at its recent meeting in Boston, the end is not yet. These discussions it is true teach the various methods of manipulations, but they are not upon that basis that settles questions scientifically, therefore discussion is ever in order.

The lesson we should draw from this is that operators differ in manipulation as men differ in handwriting and other acquirements which go to make individuality. Since there is good in all forms and methods, it becomes the duty of each to acquire sufficient knowledge of the whole to at least know which, under existing circumstances, will best meet the end in view. *Which is best* cannot be determined

by discussions which only cover the methods of doing things while the *thing to be done* is not mentioned. The demand for a filling implies that a portion of the crown of the tooth is without enamel, or in other words, is exposed to the chemical action of such agents as may then exist in the oral cavity. The agency of a filling in preventing such action consists in excluding the corroding fluids from the surface beneath the filling. Let us bear in mind that exclusion of fluids from the dentine is the thing to be done to make what is termed a successful filling. If we have a bottle containing ether or chloroform, we understand that it is essential that the stopper fit closely. It makes no difference what the stopper is made of so that there be no communication between the contents within and the air without. This principle applies well to filling teeth, with no matter what material. Of course there are many things to be taken into account—beauty, durability, cost, &c.—all of which are essential, but do not relate to points under consideration.

Now, let us commence far back, and for the time being say nothing of the poor who cannot have gold fillings; let us assume that Dentists generally are skilled in the use of gold, and let us be liberal with all and say that ninety per cent. of teeth filled may be saved. This large percentage would apply only to the best operators, and the best class of patients. It is not unreasonable to suppose that circumstances might reduce the percentage to fifty or below. The vital question is—what is the real cause of failure? One says defective manipulation; another incompatibility. Discussions do not settle the question. Failures charged to malleting, to cohesive gold, to leaky fillings, all rest upon a level that any metal of a nature sufficiently fine to resist oxidation in the mouth, if continued in close contact with tooth structure, will, by reason of thermal change and the aid of solid substance, like meat fibre, nerves, membrane, &c., decompose the fluid lying between the filling and the cavity walls. In other words, the success of a gold plug which does not exclude circulation of fluids is incompatible, because the tendency is to maintain an acid condition which works ruin in a short time.

Let this pass as a mere statement and return to the correction of the evil. The requirements are that the gold shall absolutely exclude moisture at the outer surface—as the cork fits the neck of the bottle. It matters little whether the centre of the plug be dense or not; it is of no account what form of gold is used. That is best which enables the operator to best attain the points necessary—namely, contact of gold with dentine.

To recapitulate. Gold is incompatible with teeth bone in connection with moisture. Perfect adaptation excludes moisture and secures success. Defective manipulation opens up the way for secondary decay, upon well founded principles. Thus, we believe that little good can come from strong persistence in the use of any one material, or mode of practice.

In connection with the law already mentioned, I feel prompted to call attention to the more recently introduced amalgam. Great effort is made to produce amalgam that will not tarnish. Considerable progress has already been made in this direction, and much of this material we are told is now being used. According to the principles already mentioned, we are to look for some disappointment respecting the use of fine amalgam in that class of teeth most in need of that material. The disappointment, if any, will consist in decay around the plug, progressing more rapidly than might have been looked for with the ordinary composition. This does not apply to the better class of teeth which might as well have been filled with gold, but to cases where there is need of some antiseptic agent to fill the porous dentine. There may be means devised to overcome any such difficulties, should they arise. In my practice I line the cavities of all doubtful teeth with tin foil, as I would for gold, using more tin however. I find the tin amalgamated, which presents to the dentine a soft plastic surface of material quite compatible with tooth bone, and not in the least injurious to the amalgam proper. The process of absorbing excess of mercury by packing tin foil upon the surface of the plug so changes the compound that the edges have no strength to resist attrition, and soon there appears a slight groove around the plug in contact with the walls of the cavity.—*Odontographic Journal.*

NOTHING NEW.

ON looking into Ambrose Paré's 'Surgery' lately, we were much struck at the references we found to what are often supposed to be new ideas. This eminent man, who was the inventor of the arterial ligature, and who may justly be looked upon as the father of modern surgery, was surgeon to the French kings, from Henry II to Henry III, *i.e.* in the time of our Henry VIII, Edward VI, Mary and Elizabeth. His mention of transplantation we have referred to elsewhere; here is a case of replantation. "If the teeth become loose by a fall or blow they must not be taken forth,

but restored and fastened to the next that remain firm, for in time they will become confirmed in their sockets; as I tried in Antony de la Rue, a tailor, who had his jaw broken with the pommel of a dagger, and three of his teeth were loosened and almost shaken out of their sockets. The jaw being restored, the teeth were also put in their places and bound to the rest with double waxed thread. For the rest, I fed the patient with broths, jellies, and the like, and I made astringent gargarisms of cypress nuts, myrtle berries, and a little alum boiled in oxycerate, and I wished him to hold it a good while in his mouth. By these means I brought it so to pass that he, within a little while after, could chew as easily upon these teeth as upon the others."

That the nervous connection between the teeth and ear was known at that time is evident from the following passage:—"I, being once troubled with grievous pain of this kind (toothache), followed the counsel of a certain old woman and laid garlick wasted under the embers to my pained tooth, and the pain forthwith ceased. The same remedy used to others troubled with the like affect had like success. *Moreover some think it available if it be put into the auditory passage.* Others drop into the ears oil of castorium, or of some such other chymical oil," &c.

Paré's remarks on tooth-stopping and on extraction are also very quaint and interesting, but we must reserve these for another opportunity.

THE PHILADELPHIA DIPLOMAS.

THE name of Dr. John Buchanan, one of the principal actors in the proceedings connected with the "bogus" medical diplomas of the Philadelphia University, is not likely to be soon forgotten. American papers now report that Buchanan, who is at present undergoing a sentence of imprisonment for a share in those fraudulent transactions, has surrendered to the State authorities all his books, letters, and papers connected with the sale of diplomas. Among them is a list of the diplomas sold to foreigners, and it is said that the correspondence includes letters from about 5000 persons who wished to obtain diplomas. It further appears that three professors of the University joined in signing 500 diplomas, five dollars being paid each time for a signature. The Spanish Consul in Philadelphia is charged with having certified the authenticity of some of the diplomas sent abroad, receiving a fee of 350 dollars for this friendly help. Altogether it is estimated that nearly 10,000 persons are more or less compromised by Buchanan's revelations.—*Times*.

Miscellanea.

ROUND ABOUT NEW YORK AND PHILADELPHIA.

By LAWRENCE VANDERPANT, L.D.S.I.

HAVING realised my dreams, achieved the ambition that has smouldered within me, any time this last quarter of a century, viz. that of visiting the continent of America, I am now anxious to deliver myself of some of the many delightful impressions my visit and sojourn have afforded; but I will endeavour to confine myself as far as possible, and that briefly, to matter of immediate interest to your readers, viz. "tooth-lore and its concomitants."

I have been here now two months, and continue hour by hour only to marvel—to convey any idea from a British point of view, of the grandeur and magnificence of this country, of the wonderful intelligence displayed in supplying the requirements of mind and body, the refinement and true "gentility" of this people, is beyond the capacity of your correspondent to describe. But it may not perhaps be out of place to state, for the guidance of many of your readers who may be in doubt where to spend their summer vacation, that they can arrange on this side of the Atlantic with more economy, facility, convalescent effect, and ensure life-long memories of delight, than by the same expenditure in Switzerland, France, Scotland, or Ireland. My esteemed friends, Messrs. Cook and Son, furnish a return ticket to Philadelphia or Boston for £20, direct from Victoria Docks, London, or Liverpool, or Glasgow (from the two latter ports the fare is somewhat more). You enjoy, in the glorious Atlantic voyage, all the luxuries, and more, of a first-class Continental hotel, and if the tourist be an abstainer from intoxicants—which I recommend American travellers to be—the above sum will include all his expenses for about a month, the duration of his ocean journey out and home. A uniform hotel rate throughout the States of \$3 to \$3 50c. (i.e. 12s. to 15s.) per diem for all charges of board, lodging, and attendance can be relied on, and with a sum of £40, a tour may be made, including New York, Philadelphia, Baltimore, Washington, Albany, and Saratoga, up the beautiful Hudson River by boat, and Boston also, by steamer from New York, so that a traveller, in about seven weeks, from

London and back, will have visited and seen much of interest, not only of the Continent, but of the world.

The profession here meets you with oysters and lager beer at every turn, for everybody's oral cavity is enriched with auric embellishment. The first American I came in contact with, a pilot, who boarded our ship on Sunday, had his two centrals and a lateral at least two thirds restored by a contour cohesive-gold filling; and, in reply to me, gave a very intelligent description of the operation, explaining how the rubber dam and mallet were used, the peculiar advantage of adhesive or aullier "cohesive gold," as they invariably style it here, and the gratitude and pleasure he felt in the successful result of the work; and what struck me forcibly was the strong prejudice he had for artificial teeth. The replica of this may be found with every other class—the police (who by the way are great swells here, having an emolument of of \$1200 per annum), assistants in stores, &c. The astounding freedom, one of the great characteristics of the country, is most agreeably displayed by the manner in which the Dentists treat your visit. My introduction has been, in many cases, merely the statement "*that I am an English practitioner and seeking enlightenment.*" That has been sufficient, without any exception, both here and in Philadelphia, to afford me the opportunity of witnessing their operations for hours at a time. These courteous and hospitable gentlemen will voluntarily introduce you to their professional friends, scientific meetings, the colleges, and, "*tell it not in Gath,*" to some wonderful combinations of oysters and scollops in a palatial restaurant at the end of a fully occupied Dental day. The visitor is struck by the all-absorbing interest shown in the profession by its members, the firm and affectionate friendship that exists among them, and the interest they feel in each other's work. Their offices—they designate their work-rooms so—are freely open, and the patients appear pleased than otherwise at the interest their particular case excites.

A word about their rooms. They are generally three magnificent saloons such as, in the imperial days of the Tuilleries, would be worthy even of that palatial roof. The third will be the office, with a light screen partially surrounding one, two, or three operating chairs, as the case may be. When the office is in "*full blast,*" there will probably be three, four, or more assistants; everything that ingenuity can devise is done to save labour and time. As they are here very badly off for domestic servants, the door is as frequently as not opened by a professor and M.D., or by a nigger, who tells you the "*doctor is straight away in his office.*" If the patient has an appointment she divests herself of her external habiliments,

and walks straight to the chair, and work is preceded by very few words of greeting or otherwise. The system of maintaining regularity and punctuality in appointments is rigidly observed, so that you do not see a crowd of patients in a Dental office, as is the case in London, &c. In many cases the operator charges for the time occupied in treating a mouth, which may vary from five to fifty dollars an hour. Differing from an English Dentist, the American works in a light linen jacket and frequently slippers; he is particular to take his midday meal, and when he is fatigued he acquaints his patient of the fact, and makes an appointment for another day. In this way it will be obvious the advantage of (when conscientiously carried out) calculating by time rather than by amount of work done. Many gentlemen adopt a specialty to the exclusion of all others; thus, some *only extract teeth*, and I have seen them firmly decline to do a simple filling or adjust an artificial denture; another only cleans, scales, treating in connection therewith; and I believe there are practitioners who do not even possess the means of either extracting a tooth or taking a model of the mouth. It is impossible for one to understand American practice, unless they comprehend the high scientific and honorable position the profession holds in the opinion of the masses; indeed, from my limited opportunity of judgment, I believe the Dental holds a higher one as a public necessity, and I may say socially, than the practice of medicine and surgery.

Your readers are all thoroughly familiar with the use of the dental engine, the rubber dam, and many with the hydraulic raising chair, the Morison bracket, the use of the mallet in plugging, and the taking of models in plaster. I will briefly mention points of practice that I have not seen in Europe.

1st. The use of plaster, to the exclusion of all other means, in all and every case, however complicated, in taking models of the mouth, the advantages of which, as an old and experienced mechanic, I *am* unable to comprehend.

2nd. The universal mode of cohesive filling, the child-like confidence in its efficacy, the great simplicity and rapidity by which a large and complicated cavity is restored, the trifling infliction to the patient, and the substantial result attained. To effect this truly marvellous work an instrument, I imagine little known in Europe, is used, *i.e.* the "electric mallet." I cannot conveniently describe it, but may merely say it possesses no inherent quality from complicated construction, liability to get out of gear, or difficulty in manipulation, to prevent it becoming a *sine quâ non* to every advanced oral surgeon. I witnessed at the clinic

at S. S. White's in New York, on Tuesday, Dr. Webb build up the whole crown of a superior molar, saving a small portion of the buccal wall, using half an ounce of foil, thickness thirty to sixty grains to leaf; some use as high as 120, not beaten, but rolled. This operation will be described in Johnston Brothers' interesting 'Monthly Dental Miscellany.' This ingenious implement emanates from the fertile brain of my friend Dr. Bonwill, of Philadelphia, who was sixteen years in bringing his idea to a practical issue, but with almost tears in his eyes he (Dr. Bonwill), after showing me all the various mechanical stages his work had passed through during the number of years occupied, took his engine and exclaimed, "*Here I murdered my electric mallet.*" The means by which he claims to have been guilty of this mortal sin is by an arrangement, adjustable to any dental engine, of an automatic mallet of marvellous simplicity, and capable of regulating force of blow. The disadvantages would be that the lathe motion of foot is requisite, and probably its use would be more exhausting to the operator; still it will, undoubtedly, with the electric, supersede the hand mallet. While on this subject I cannot refrain from calling attention and expressing surprise that an automatic mallet, invented by Mr. Kirby, of Bedford, and beautifully constructed by Messrs. Ash and Sons, is not more in vogue. I used one for some years, and have lent it to first-class operators, who after a little experience have preferred it to any others. I wish I had one now; it was an inexpensive affair, but possessed many advantages. Bear in mind *we* this side of the Atlantic do not possess, although nearly so, an entire monopoly of inventive capacity.

Two new systems of restoring crowns by pivoting are in great commendation, *i.e.* the "Bonwill" and "Richmond." The former is a very simple one—by means of an appropriately drilled and internally curved (for the reception and retention of the amalgam) mineral crown, suitable cavity or cavities in the pulp canals, strong platina plate pins, the mineral crown and natural root fitted accurately to each other, the whole united by amalgam. I have seen patients masticate orange-wood sticks with molars adjusted by this plan, and I certainly think your strong English teeth (Ash's or Lemale's) would be better adapted than the softer and more friable body of ours. The Richmond plan consists of arranging a crown of thin gold or platina plate to the *débris* of tooth to be replaced; a model of the tooth is taken after the accuracy of the fit to the margins of the root is effected—a tailor's thimble tightly fitting to the finger conveys an idea at this stage. A model of occlusion or antagonism is

obtained by filling the "thimble" with plaster, it is then returned to the mechanic for the arrangement of a metallic masticating surface. A pin may or may not be arranged to pass into pulp canal, and the final operation consists in uniting the gold crown to the natural remains of the tooth by overfilling the "thimble" with phosphate oxychloride cement, and driving the whole home by mallet over the root and beneath the margin of the gum. This plan is in great favour, and certainly displays a very workmanlike result with great strength.

I am not prepared to say much in respect of mechanical Dentistry, for this reason, that I have seen but little, and believe the subject is little cared or thought about by the leading men; but I must candidly aver that I believe in Europe the work in every way reaches a higher standard of perfection, both as to result and the means of attaining; for instance, that beautiful flask arrangement of Messrs. Ash's, known as the "Bennet," and "Bell and Turner," are quite unknown, and when I referred them to the English catalogue they were astonished and concluded to order some straightaway. One thing in justice I must remark, the fees for artificial work are very small comparatively, and that they invariably use gum teeth and gum sections, arranged with great taste and skill. The show-case fraternity, of which there are a vast crowd in this city, and a few advertisers do thorough justice to their patients in mechanical work, and at a very small cost.

A new cast metal is being introduced, called "Reiss's." It claims advantages over rubber, celluloid, and Dr. Blandy's old cheoplasty. Dr. Reiss at the Clinic, exhibited some beautiful compound work of the metal with continuous gum and celluloid; it is in high favour with some of our leaders, but I doubt if it finds great favour on your side. Celluloid is an important industry, many persons wearing collars and cuffs manufactured of it, as also watch-cases, of course white in colour.

It would be easy and interesting to continue to scribble, but I have already become wearisome. Much might be said of the colleges and hospitals at Philadelphia; the department of Dentistry at the Pennsylvania University seems to me to be the *ne plus ultra* of an Alma Mater. I think in the "office" there are upwards of forty chairs, with every appliance, in the highest state of perfection, including the mechanical department. The same description applies to the two other colleges, only they are smaller.

On the first Tuesday in every month there is a clinic at S. S. White's Dépôt in New York, at which operations

are performed and every new matter ventilated. In the evening a report of the work is made and discussion thereon occurs. These meetings are held alternately at different Dentist's houses, so your readers may suppose their rooms are commodious. I should not omit at least to mention in passing something of Messrs. S. S. White's establishment, whose hospitality and courtesy permitted me to inspect every detail of it, from his grinding of the quartz to the packing and mailing of a single tooth to China; although well acquainted with most of the cities of Europe, I was more struck by the grand architecture of the marble and granite palaces of Philadelphia than anything I had seen elsewhere, and the Dental Depôt at "Chestnut and Twelfth" is simply superb. Their retail store, with offices, &c., is one large room about the size of St. James's Hall, over and under which is for the most part their manufactory. One can only form an approximate idea of its character. The firm possess a quarry for the production of special quartz. I am not sure if they have a dense forest to supply toothpicks; they may have. I am not writing in any spirit of Chauvinism or comparison; I am here enjoying the delights of this vast, magnificent, and wonderful country, and the recipient of their hospitality, and gaining enlightenment from a highly cultivated generous body of earnest Dental practitioners.

I believe every English Dentist coming here will receive the fraternal shake, and an honest, hearty welcome uttered in our own beloved vernacular, and cold indeed must be the heart that does not swell with emotion when he hears in this land of the setting sun, three thousand and more miles across the Atlantic, his language ruling and guiding denizens and people of every climate under the sun, and his own people helping to build up the arts of peace, industry, and sobriety by the greatest community, in the grandest country of the world.

DENTAL AMENITIES.

WE have a suspicion that the correspondent of the 'New York Times' is not the inventor of the following story, or, at all events, that we have read something like it before; still it may be new to some of our readers, and is besides good enough to bear repetition.—ED. B. J. D. S.

"There is on the staff of the 'New York Times' a gentle-

man who does 'funny' writing for the journal's editorial columns, and there recently appeared from his pen an article with the above title. According to this individual the Dentist is a man whose function it is 'to perpetually inflict grinding torments on one's fellow-beings.' The slight obfuscation of vision that the *Times*' man possesses as to what Dentists do is pardonable. If for no other reason we pardon it because of the rich story he gives us, though it is, in all probability, a wicked concoction of his own imagination. The tale runs thus:—A Boston Dentist invented a series of straps to hold patients in position. One day there came to him a young Bostonian in company with a Frenchman who could not speak a word of English. The Bostonian said that his companion wanted eleven teeth drawn. The fact was, that these two young men were both suitors for the hand of one young lady. The Boston young man made himself the bosom friend of the Frenchman, and on this particular day suggested that he should have his photograph taken. Instead of taking him to a photographer, the artful Bostonian took him to the Dentist. The Frenchman sat down in the chair, had the straps adjusted, thinking that he was about to have his picture taken, when suddenly a pair of forceps emerged from the sleeve of the Dentist and a front tooth was out. The indignation of the Frenchman was mistaken for a demand for an anæsthetic; chloroform was given, and ten more were drawn. The sequel was, that the Dentist, his chair, windows, &c., were smashed; the Frenchman left the 'Hub of the Universe,' and the young man who had deceived him married the lady he loved. This is a very simple, pathetic story, but before the *Times*' man writes again on 'Dental Amenities,' he should learn that Boston Dentists do not pull teeth out in such a wholesale, promiscuous fashion, and that the extraction of teeth is not the most important part of a Dentist's work."—*Johnston's Dental Miscellany*.

HAMLET'S SOLILOQUY ON THE TOOTHACHE.

To have it out or not—that is the question;
Whether 'tis better in the jaw, to suffer
The pangs and torments of an aching tooth,
Or to take steel against a host of troubles,
And by extraction end them? To pull,—to tug,
And in that little tug to think we end
The toothache, and all the natural ills
The jaw is heir to!—'Tis a consummation
Devoutly to be wished! To pull,—to tug—

To tug—perchance to break ! ay there's the rub.
 For in that wrench what agonies may come
 When we have half dislodged the stubborn foe,
 Must give us pause. There's the respect
 That makes an aching tooth of so long life.
 For who would bear the whips and stings of pain,
 The old wives' nostrum, the Dentist's contumely,
 Fond hopes deferred, kind sleep's delay,
 The insolence of pity, and the scorn
 That patient sickness of the healthy takes,
 When he himself might his quietus make
 For two and sixpence ? Who would these fardels bear
 To groan and sweat beneath a load of pain,
 But that the dread of something lies within
 Those linen-twisted forceps, puzzles the will,
 And makes us rather bear those ills we have
 Than fly to others that we know not of ?
 Thus Dentists do make cowards of us all,
 And thus the native hue of resolution
 Is sicklied o'er with the pale cast of fear ;
 And many a man whose courage seeks the door
 Turns back his steps, scared at the name of DENTIST !

* * The above, we need hardly say, is not original, but it may be new to some of our readers, and perhaps even to some of those who consider themselves tolerably well acquainted with the works of the Immortal Bard.—ED. 'B. J. D. S.'

IN the Periscope of the January number of the 'Dental Cosmos,' a new method of filling single-root teeth is given.* I resorted to a somewhat similar expedient on November 11th, 1880. It was in a case of a single-rooted lower molar, where caries had enlarged the root-canal almost up to the apex ; the lingual and anterior walls were even with the gums. I had treated it for a week, when the patient informed me that she could not come again for six weeks. I did not know what to do at first, as there was quite a fetid discharge ; but I hit on the following plan :—I placed the end of a waxed thread in the foramen and packed amalgam around it till within one eighth of an inch from the top, when I bent the thread at right angles and brought it out anteriorly. I then finished filling the cavity, and after I had smoothed the filling up I held a spatula against the filling at the side of the

* This refers to a communication from Mr. Geo. Beavis, of Newport, Monmouthshire, which appeared in the 'British Journal of Dental Science' for October 15th, 1880.

thread and withdrew the thread. I have not seen her since, but I learn that she is not bothered by the tooth. I resorted to the same procedure about a month ago, with a like result. The thread was brought out at the side of the tooth to prevent food from being forced in.—WILLIAM D. KEMPTON.—*Dental Cosmos*.

PRESENTATION TO MR. W. V. DITCHAM, L.D.S.

IN the Journal for Dec. 15th we made public an offer from Mr. Ditcham to superintend gratuitously a class composed of practitioners who were preparing themselves for the L.D.S. sine curriculo examinations. We are happy to say that Mr. Ditcham's exertions were attended with very satisfactory results, and at a supper given at Anderton's Hotel, on April 9th, the successful members of his class presented him with an electric automatic mallet, suitably inscribed, in acknowledgment of his kindness and attention in thus coaching them for the examinations. We congratulate both parties on their success, and hope that the example may find imitators.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the April sittings of the Dental Board the following gentlemen passed the first part of the examination :

Mr. Wm. Adamson, Glasgow.

Mr. Geo. Holdcroft, Beccles.

Mr. R. M. Wills, Glasgow.

The following gentlemen, having passed both parts of the examination, were admitted licentiates in Dental Surgery :

Mr. James Cameron, Glasgow.

Mr. James Cumming, jun., Glasgow.

Mr. William Dall, Glasgow.

Mr. James H. Parkinson, Hulme.

Mr. Joseph Weber, Luxembourg.

Four candidates were remitted, two on the first, and two on the second examination.

Candidates at the second examination, being subjected to an examination in practical Dentistry in the Dental Hospital, will now be required to bring with them plugging and excavating instruments and files.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

- "J. H. B."—There is, unfortunately, no law to prevent a person from signing himself "S.D.R.C. Eng.," or appending to his name any other combination of capitals, except those which are generally recognised as indicating the possession of a legal qualification.
- "A. M. P."—We know of no work in the English language which will give you exactly the information you require. The 'Encyclopædia Britannica' might help you, or one of the French Dictionaries of the Medical Sciences which are now in course of publication.

Communications have been received from the Secretary of the Faculty of Physicians and Surgeons of Glasgow, Messrs. J. J. Musgrave (Liverpool), E. Cox Moore (London), Lawrence Vanderpant (New York), W. Cottam (Oswestry), "J. H. B.," "A. M. P.," &c.

BOOKS AND PAPERS RECEIVED.

- 'London Medical Record.'
- 'Johnston's Dental Miscellany.'
- 'Lancet.'
- 'British Medical Journal.'
- 'Medical Times and Gazette.'
- 'Pharmaceutical Journal.'
- 'Journal of the British Dental Association.'
- 'El Progreso.'
- 'Dental de la Habana.' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

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VOL. XXIV.

THE CHEMICAL AND PHYSICAL EFFECTS OF FILLINGS UPON TEETH.

A paper read before the Connecticut Valley Dental Society.

By CHARLES MAYR, A.M., Springfield, Mass.

THE task I have undertaken is almost too difficult for me. My practical experience in Dentistry is very limited, yet I am to say to a body of specialists something about an art so greatly dependent on practical skill. But our century is no longer a century of wild, planless experimenting, of crude empirical knowledge. Everywhere the theories of science are invading domains so far regarded as only dependent on mechanical skill. Many special cases come up every day where one minute of scientific reflection is worth more than years of practical experience unsupported by knowledge. The science on which Dentistry finally rests is chemistry; not the chemistry of beautiful experiments, of explosions, strong colours and reactions, but the most complicated part of the whole enormous science—the chemistry of albumen or physiology; and on this issue chemists—not the chemists of common people, who are not much more than drug clerks or stone-diggers—have a word in Dentistry.

Some chemists shirk all investigation into this most interesting but almost infinitely difficult branch of chemical science by the vague term *vital force*. They say that “live tissues are produced by vital force, that vital force acts in the body,” &c.; they think this vital force something inaccessible to laws, something beyond chemistry. Indeed, a lazy schoolboy could not invent a better excuse for his not wanting to learn any more. How glad he would be if his teacher should say, for instance, “Now we have come in algebra to the equations of the third degree, they cannot be solved any more, and therefore you have finished your work.” He believes it; and yet there are people who go much further. The same holds good of the term “vital force.” People get tired of going further ahead, and are putting up for themselves an imaginary goal by this term. Yet, unfortunately, the

highest teachers of all countries never get weary of investigation; onward they move, and they now only use the term "vital force" instead of "resultant of mechanical and molecular forces acting in combination with albumen." The effects of this peculiar resultant are termed "vital effects" or "life"; be it now the life of the individual, or the cell, or the protoplasma-fibre. The great problem of physiology is to resolve this resultant into its components, and so to trace back the effects to their final and easier intelligible causes. It has been done with light, with sound, with heat to a large extent, with electricity and magnetism to a small extent, and in the coarser mechanical phenomena of astronomy and mechanics almost to perfection. It will be done with "vital force," taken in the sense in which I understand it. But we have hardly commenced to study the chemistry of albumen. Chemistry, this really divine science, is not yet one hundred years old, and the chemistry of albumen is hardly born. We know about the chemical constitution of albumen just about what Lavoisier knew some ninety years ago about sulphuric acid. All we know are a few approximate analyses and gross reactions like coagulating, &c., but no constitution is yet known, no formula assignable to the albuminous substances; we have not yet been able to explain the chemical effect of one albuminous substance upon another. If the adepts know so little about it, what wonder that people who are no adepts in chemistry ascribe chemical reactions to imaginary supernatural forces that exist as little as witches, sorcerers, and the host of other impossibilities invented by ignorance!

I would not give to you these long introductory considerations if they were not to show how much still remains to be done, and to enable you to excuse me for the little new I can give here. It will require the Hercules power of a Newton or Kepler to bring light into this night of the chemistry of albumen.

If the chemistry of albumen—protoplasma—is still so little known, we hardly can expect that all the processes going on in a tooth should be better known. We scarcely realise how complex a structure a tooth is, considered chemically. There are at least thirty organic and inorganic compounds acting upon each other, mechanical contrivances in the tooth like canaliculi, pulp, &c., interfering with the mere chemical actions; so the more we know about a tooth, the less we know of it. All we know is, that every process in a tooth is chemical or mechanical—a third does not exist, since light, electricity, &c., all have to be grouped among the latter. Its origin and its decay are chemical processes,

explainable by the reactions of albumen. I therefore shall not enter at all upon the causes of decay. I have to consider the facts as given. There is no doubt with me that one day science will be able to explain everything connected with the chemistry of albumen, and the effects and causes of diseases will be calculated just as exactly as the movements of the stars, of heat and light. The scientist, who, perhaps, will smile at our dark age, will calculate that, say four years and three months after a certain fever, the right bicuspid would commence to decay, if, some months before, that and that albuminous compound had not been taken. The Dentist will then have to use more logarithms than instruments.

To-day we stand before the fact that, generally, the most skilled Dentist is powerless to prevent the formation of cavities. He has to cure, but cannot prevent disease. By filling the cavity properly he can, as the facts show, check the onward course of destruction; and for this purpose he uses one or the other of the fillings now in the market. There are four kinds—gold, amalgam, basic salts of zinc, gutta percha, omitting some of minor importance. Each filling acts in three ways—mechanically, thermally, and chemically, sometimes by electricity. The effects will, further, be very different in young teeth and old teeth, “live” and “dead” teeth, &c. I shall not enter into the definition of live and dead tissue. I should like only to draw your attention to the histological difference between young and old teeth. Not that the grossly chemical composition is so very different, but there is a difference in the way in which it is distributed. In young teeth the protoplasma substances in the alveoles, in the pulp, and in the dentine itself, are still building up; the lime salts are not yet distributed, as in old teeth; the moisture is greater and the circulation quicker. As circulation is the essential feature of what we call live tissues, we are justified in saying that young teeth have more life. In old teeth the building-up has ceased, the protoplasma-fibres withdraw from the periphery where lime salts are accumulating, the pulp itself is slowly disappearing, the tooth becomes harder. Now this difference in teeth as to age, development, personal conditions, &c. is the cause of the differences of the action of the same fillings in different teeth.

Let us consider the fillings in the three directions—mechanically, thermally, and chemically. The mechanical effect of a filling is chiefly produced during the process of packing it. With gold it consists in a relatively violent hammering. There is no doubt to me that this violence

may be injurious. We are permitted to infer from a similar process in other parts of our body that any mechanical disturbance of the histological arrangement of organs will produce these effects. The injured parts will be fully restored by a relatively short process, or they will die, *i. e.* the circulation will cease. The first effect will occur in parts with quick circulation, in muscles, etc., while the second effect is liable to occur in organs with already slow circulation. I do not doubt that many a failure of a gold filling is due to the injury the tooth-structure has experienced during the process of packing. As a disturbance of the circulation is chiefly injurious in young teeth from the above reasons, I should ascribe a part of the difference of the effect of gold-fillings in young and old teeth to the mechanical insult. That a tooth can be the seat of an inflammation seems to me to be beyond doubt. Inflammation is defined as a disturbance of circulation with a tendency to sloughing or secretion. As the slightest mechanical injury of a muscle may set up an "inflammation," it might be inconsistent to say mechanical injury cannot produce such an effect in a tooth. Inflammation takes the most varied forms; a cold, a boil, an iritis, a pimple, pneumonia, rheumatism, are special forms of inflammation. Now the effect of inflammation in a tooth will be—as everywhere—first, increased sensibility, then increased secretion, finally either slow restoration of the former condition or sloughing and destruction. We are fully able to observe the first stage and the last in every tooth. Caries is nothing but a slow ulceration similar to chronic ulcers everywhere. That mechanical violence can cause it, seems to me pretty well established by the analogy with other organs.

Among the mechanical effects of a filling must be counted that of excluding liquids. Though we do not know the exact relation, yet observation is in favour of the view that the buccal liquids have to be excluded from a cavity as well as possible, if there should not be danger. The idea that a gold filling excludes moisture absolutely, seems to me untenable. Even the most solidly-packed gold never is solid gold. Small cracks are everywhere. The best filling I read of had a specific weight of 18.0; as pure gold has a specific weight of 19.36, it follows that more than 7 per cent. were cracks. Gold certainly does not exclude the moisture as well as any of the other fillings. The mechanical effects of the other fillings while being packed are far less than those of gold, the use of amalgam and oxy-salts of zinc having almost no mechanical effect to speak of, while gutta percha might sometimes be heated too high when put in the tooth. All these fillings exclude moisture better than gold.

The next effect of a filling is its thermal effect. We all know how sensitive organic tissues are to changes of temperature. I do not only speak of the organs generally protected against sudden changes, but even the organs exposed to all changes of weather since the existence of man, still show a most unpleasant sensitiveness to thermal changes. Take, for example, the mucous membrane of the nose. For thousands of generations it has been exposed to all kinds of weather, and still it is most sensitive to changes. The fact is, that ten degrees difference may produce a cold, which becomes chronic, destroys the os petrosum, the meninges, the brain, the person! How complex is here the connection between ten degrees change of temperature and the death of a person. I know such a case. Can we suppose that teeth are less liable to become diseased in consequence of changes of temperature? Certainly not, and I have some facts on my side. In countries where people are not in the habit of drinking hot and cold water—tea and ice-water—at their meals, diseases of the teeth are far less frequent than where they do so. We have Italy, Russia, China on one side—America, England and Switzerland on the other.

I shall not dwell too long on this point; let us only consider what fillings do in this direction. By a good heat-conducting filling we can carry changes of temperature within the tooth which are most sudden and violent. In sound teeth it takes at least five minutes for a change of only twenty degrees to take place, and then probably never throughout its whole mass. By a filling like gold, which conducts two thirds as well as the best conducting metal known—silver—we can bring the changes to tissues not only not accustomed to them, but even not at all prepared by slow increase. In nearly all such cases the change is sudden and great. Suppose a cavity of a depth of five millimètres (one-fifth of an inch) filled with gold. The person has been eating, say, an oyster stew of 130 degs. Fahr.—the common temperature we like in such kind of broth. The gold filling carried the difference between the temperature of the broth and that of the mouth ($130 - 98 = 32$ degs. Fahr.) almost undiminished to the bottom of the cavity. (The diminution can be calculated; it is about 2 degs. Fahr.) The cavity around the gold filling has assumed the temperature of 128 degs. Fahr. Now the person feels warm, and of course (?) drinks ice-water of 32 degs. Fahr. Taking into consideration the specific heat of the gold filling, it will assume about 40 degs. Fahr., which it carries with a diminution of the cold of about four degrees (that is, as if it was 44 degs. Fahr.) into the interior of the

cavity. The cavity will then assume 44 degs. Fahr., the difference within one-tenth of a minute being $128 - 44 = 84$ degs. Fahrenheit—a change which in any organ whatever would produce a most violent inflammation, if such an organ should not be well accustomed to it, like the hands. Few persons would even escape a rheumatism in case the hand should be exposed to such changes. Now, what does such a derangement mean in a tooth? It means disease of the protoplasma-fibres, interruption of the circulation—necrosis; precisely what Dentists observe. Young teeth, which are still more dependent on circulation, will be affected more easily than old ones, where the fibres are fewer, and which resemble, in some respects, an inorganic structure. As this disease takes place all around a gold filling, we might expect a zone of white necrotic dentine under such fillings.

Amalgam fillings have an effect similar to gold fillings, yet in far less degree, owing to their inferiority in heat-conducting power. For the comparison, I give specific heat and conducting power of the common fillings, from the most reliable observations and calculations:

				Specific Heat.	Heat-conducting
				Water=1.	Power. Silver=1.
Silver	.	.	.	·057	1·00
Gold	.	.	.	·032	·60
Tin	.	.	.	·056	·12
Platinum	.	.	.	·031	·10
Amalgam	.	.	.	·050	about ·09
Mercury	.	.	.	·031	·03
Oxy-salts	.	.	.	·130	·008
Gutta-percha	.	.	.	·500	·000001
Dentine (natural)	.	.	.	·400	·006

We therefore see that the thermal effect of a filling not only depends on the heat-conducting power, but also on its specific heat; so the more the latter approaches that of a tooth, the less is it liable to produce sudden changes. In this respect amalgam is almost 100 per cent. superior to gold. Specific heat will manifest itself by the speed of changes, while the heat-conducting power influences the intensity. The difference in the above example of a gold filling was 84 degs. Fahr., while under the same circumstance amalgam would only have produced—

First heating, 104 degs.	} Difference, 46 degs.;
Afterwards cooling, 58 degs.	

that is, the effect is only one half, at the most, of that of gold. As to the relative speed of changes, it may be said that gold produces this change in one tenth of a minute,

amalgam in one quarter of a minute. These figures may vary in different persons, locations of cavities, size and form of cavities, yet the fact will remain that, other things being equal, amalgam fillings will produce only one half the change of temperature of gold fillings in twice the time, therefore with far less insult for the tissue. I think that Dentists have observed that the cavity under an amalgam is—almost without exception—sound, and formed by live tissue. We should consider very well the thermal insult of gold fillings in young teeth. Oxy-salts of zinc resemble dentine somewhat in their specific heat and conductive power. Calculation, as in the above example of a cavity, would give a difference of about 2 degs. Fahr., which is almost insignificant. They may, in this respect, be considered identical with dentine.

Gutta percha might rather have an opposite effect. The cavity around it will be kept at a more uniform temperature than if it was dentine, yet the difference would be only about $\frac{1}{2}$ deg. Fahr. in the above example. I might enter into the effects of fillings when being used, as to their distributing and transmitting the pressure of mastication evenly, but it would lead too far.

A third effect of fillings might be termed chemical. A filling may affect the substance of the teeth by affinities, or might protect it by neutralising the acid around it. In this respect gold is completely indifferent; it is not acted on by, nor does it act on, any liquid in the mouth. The filling is excellent, yet this excellency of the filling has its defect. It does not protect the tooth as oxy-salts do. Small cracks between tooth and filling are not filled up with oxidation and sulphurisation products. Tooth and filling are never cemented together. This inactivity of gold, therefore, is very dangerous for the tooth, though not for the filling. But what do we wish to preserve?

It is quite different with amalgam. Though acted on but slowly by the liquids of the mouth, yet it is acted on sufficiently to fill up small cracks between tooth and filling and to become cemented to the tooth. The filling becomes tight by the same principle by which steam-boilers are made tight. The boiler makers make the seams tight by oxidation, which they foster by certain mixtures. The rust fills up small cracks, so that a boiler of iron is far easier to make than one of silver or gold. With gold, in fact, it would almost be impossible to make a boiler, for this reason alone—because no hammering can fill up cracks as perfectly as oxidation.

Yet amalgams have another disadvantage—their shrinkage.

The process of hardening of amalgams is one of crystallisation, due to the formation of chemical combination. We know but few cases of such combination where the volume of the combination is the sum of the volumes of the elements. Generally contraction follows, rarely expansion. Tin and mercury form the following compounds :

$\text{Sn}_3 \text{ Hg}$	with 34	per cent.	mercury.
$\text{Sn}_2 \text{ Hg}$	„ 46	„	„
Sn Hg	„ 65	„	„
$\text{Sn}_5 \text{ Hg}$	„ 75	„	„

The only compound without shrinkage is Sn Hg . $\text{Sn}_3 \text{ Hg}$ shrinks about 8 per cent. Theory gives, therefore, quickly the proportions of a good amalgam, supplanting years of planless trying. More than 75 per cent. of mercury cannot be combined chemically with tin. The excess will disappear in time, and cause a very great shrinkage. Similarly, with silver and mercury; many compounds are known with 64 per cent. Hg , 72 per cent. Hg , &c. All silver amalgams are very soft, shrink considerably, and lose relatively easily, their mercury. Still less stable are compounds of gold and platinum and mercury. The mercury evaporates from platinum as if no combination had taken place. The causes of shrinkage are therefore three:—Crystallisation, disappearance of mercury in excess, disappearance of “combined” mercury. I am at a loss to say why some amalgam makers put gold or platinum in their amalgams, if it is not to give to their amalgams some nice taking name—gold amalgam. How a certain mixture will work is very difficult to tell beforehand, yet we may always get an approximation to the truth. I will not deal here with the other objection—that mercury might “get into the system” from an amalgam—it would show too much esteem for certain medical superstitions.

The oxy-salts of zinc act chemically. While being put into the tooth the chloride of zinc or phosphate of alumina will decompose a small quantity of lime salts; but this action will cease as soon as the filling has hardened—that is, the chemical union, $\text{ZnO} + \text{ZnCl}_2 = \text{Zn}_2\text{OCl}_2$, has taken place, and the very small quantity of carbonic acid, &c., formed is very easily absorbed and the tooth not further molested, nay, it is now even actively protected. These fillings are more easily decomposed by acids than the tooth substance; hence they neutralise the acid near the tooth and thereby protect the tooth. As a necessity, they will disappear, and that is what the average patient alone observes. He cares less about disappearance of the tooth than of a filling! Much

remains to be done everywhere in the line of education and fostering the work of doing one's own thinking.

As oxy-phosphates resist far more—I made experiments on this point—than oxy-chlorides, they are to be preferred. The chemical effect of gutta percha might be an unknown physiological one, yet grossly chemical, it is inactive, though resisting less liquids in the mouth than oxy-salts, without protecting the tooth.

Fillings sometimes produce phenomena of electricity. I do not mean anything in the line of the so-called new departure, which displays all the errors possible as far as electricity is concerned. I mean contact or statical electricity, affecting nothing but the nerves, but often most markedly. Also in this line gold fillings are the worst, because of the great potentiality of gold in electrical combination. Oxy-chlorides and gutta percha have no effect at all, and amalgam very little. By irritating the nerve constantly, as in a case of Dr. Stockwell's, where an amalgam filling was capped with gold, they may produce persistent neuralgia, and perhaps physiologically, produce changes in the nutrition of a tooth. Yet, as the unpleasantness is very great, we will avoid it. It is unnecessary to say that only the contact of two *metals* produces such electricity, like a gold filling and a spoon or fork, &c.

I would sum up my conclusions thus: Gold is *the worst filling* in most cases. It should be used chiefly in old teeth. Amalgams should be used everywhere where the patient's fancies, notions, and similar kinds of bias do not prevent it; while oxy-salts of zinc are the fillings for frail teeth, for capping pulps, &c. Yet let Dentists never forget that none of them is the ideal filling. This is not a metal, it is a silicate, translucent like the tooth, not acted on by acids, capable of a high finish—in short, a filling resembling the tooth-substance as closely as possible. Let not the foggy dogma of the superiority of gold act on progress as the old mediæval superstitions acted on astronomy, physiology, and zoology for so long a time. Because gold is so much life's only aim with most people, they forget that gold has no intrinsic claim to its superiority except long-sanctioned custom; that chemically it is far inferior to platinum, mechanically to iron, and still more to steel; that its colour is not finer than that of brass. Unclear alchemistic ideas are still active everywhere. They are the worst obstacle to clear logical thoughts. The Dentist has to educate people, yet first he himself must not be biased by the same scientific superstitions. Let him never get tired of searching for something better. We shall never reach perfection, and the

field of researches is as boundless as space and time. So far the views of the theory—only the practical Dentist can judge how far they are in accordance with his experience.—*Johnston's Dental Miscellany.*

Hospital Reports and Case-Book.

ABSCESS IN THE MOUTH CONNECTED WITH BARE BONE: RAPID AND COMPLETE RECOVERY.

By HENRY MORRIS, F.R.C.S.,
Surgeon to the Middlesex Hospital.

ON November 11th, 1880, Ellen W—, aged 26, a weakly, very anæmic, and pale-looking blonde, who all her life has had bad health, was admitted into Regent Ward of the Middlesex Hospital with an ovoid swelling the size of a large walnut in the roof of the mouth, projecting downwards toward the tongue. It was situated chiefly on the right of the median line, and fluctuated and discharged daily a small quantity of rather offensive matter into the nose as well as into the mouth. Her jaws were filled with the decayed, ragged, and offensive stumps of molar and bicuspid teeth. The swelling in the mouth appeared three weeks before admission, and was attributed to the irritation caused by the first right upper bicuspid tooth, which had been for a long time carious, and had decayed away, leaving only a stump. This stump was extracted nine days before admission. A fortnight before coming in the swelling on the palate was lanced by the patient's regular medical attendant, and a quantity of blood and matter came away. It filled again in three or four days, and subsequently broke of itself, and discharged in two places—one where lanced, and one just behind the front teeth. A week before admission the discharge into the nose began. The mouth was slightly examined on the day of admission, but owing to her weak state of health and her fainting under examination, nothing was done until the next day (November 12th), when a free antero-posterior incision was made into the abscess, and two or three drachms of mixed blood and pus evacuated. With a probe the whole palate process of the right maxilla was felt bare and rough, and the probe passed through a carious

opening from the mouth into the right nostril. A wash for the mouth, consisting of Condy's fluid, was ordered, and the wound was kept open by the daily introduction of a probe. On November 25th there was still some fulness in the seat of the abscess, but the mucous membrane had settled down upon the hard palate again. The mouth was still in a bad state owing to the stumps of the teeth.

December 3rd.—Palate looks quite sound, but patient thinks there is a trace of discharge at night into the mouth. She describes an uncomfortable "hollow sort of feeling" in the nose when she goes into the cold air. Is now well enough to bear the extraction of the stumps, all of which are to come out. The right second incisor, which was decayed, and two stumps were removed this morning.

11th.—There is now nothing wrong to be detected about the palate. Five more stumps have been removed since the 3rd of December. She is very much improved in health, and now only remains in hospital to have the other stumps removed.

21st.—Discharged well.

Remarks.—Cases are numerous enough in which an abscess connected with rough bare bone has been opened without what is now understood by the antiseptic precautions and dressings, and where no exfoliation has followed. But the above case is one in which such an abscess was opened not only without the perfect asepticity secured by the use of Lister's method, but in the presence of unavoidable and most septic conditions, the pent-up matter of the abscess having a communication with the nose as well as with the mouth and its offensive tooth stumps. Yet neither exfoliation nor prolonged suppuration resulted, and the abscess, thanks to the ordinary processes of repair, was quite well in less than four weeks.

The case is open, no doubt, to the argument that the presence of the decayed and foul stumps was an important and most favorable element in the recovery, serving as potent centres to attract the germs of putrefaction, and thus draw them away from the abscess cavity and the diseased palate bone, like wasps which hover about the cracked and over-ripened fruit of the greengage tree to the neglect of the heliotrope and roses. Further, this deduction—it would not be a logical one—may be made from the case—namely, that it would be well in every instance to have a powerful centre of putrefaction at no great distance from a wound in order to serve as a counter-attraction for the said germs. I am not, however, disposed to agree with so cynical a disputant, any more than I can believe, even when asked to do so by

distinguished men, especially with the evidence of such cases as the above before me, that Lister's method is requisite for the cure of these abscesses.

It has for some time past been quite the general practice in describing any successful operation, be it never so simple, or one ever so frequently performed, to state that it was done under Lister's method, and to imply that the success was chiefly due to the employment of this method. If this habit continues the students of medicine in the immediate future will run the risk of growing up to think that before the use of the "antiseptic system" there could have been no successful surgery at all; and when they get into country practice they will have to make provision for always carrying on horseback, or in their gig, a steam spray and rolls of gauze and protective, so as to avoid the qualms of conscience which must follow if in a weak moment they open an abscess without these precautions, and make the horrible discovery that there is rough bare bone. Every week contributes its quota to this end, and we are almost persuaded to think that without carbolic acid there can be no good from herniotomy, no safe colotomy, no satisfactory excision of a tumour or a joint. Such are the expressions which are daily heard that one cannot help feeling, with one of my old teachers at Guy's, a past President of the College of Surgeons, who said, "If all we now hear is true, I wonder we old fellows ever had a successful operation." It is to be hoped, for the sake of the just appreciation of Lister's system, that many of these "old fellows" will long remain amongst us, to hold the balance between the true and false, and to recall to our minds some of the successful results of pre-Listerian practice.

—*Lancet*.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM APRIL 1ST TO APRIL 30TH, 1881.

Extractions	{ Children under 14	459
	{ Adults	657
	{ Under Nitrous Oxide	253
Gold Stoppings		115
White Foil ditto		4
Plastic ditto		304
Irregularities of the Teeth treated mechanically		72
Miscellaneous Cases		269
Advice Cases		136
Total.....		2269

H. G. BLACKMORE,

House Surgeon.

British Journal of Dental Science.

LONDON, MAY 15, 1881.

OUR readers will find elsewhere (pp. 468—491) a tolerably full account of the proceedings at the recent session of the General Medical Council, so far as they related to Dental affairs, and it will be seen that the Council has rescinded an important resolution passed in March, 1879, which threatened to have a most prejudicial effect on the progress of higher education in the profession.

To begin at the beginning we must go back to October 17th, 1878, when the Council, then in the first throes of its difficulties with the Dentists Act, passed the following resolution:—"That Mr. Ouvry be requested to obtain the opinion of counsel as to the interpretation of Clause 6 of Section 11 of the Dentists Act, so as to inform the Council whether, under that clause, they are entitled to register in a separate column the qualifications in Medicine and Surgery under the Medical Act of 1858, held by Registered Dentists, or only higher qualifications in Dentistry." The clause thus referred to runs as follows:—"The General Council may, if they think fit, from time to time make, and when made revoke and vary, orders for the registration in, and the removal from, the Dentists' Register of any additional diplomas, memberships, degrees, licences, or letters, held by a person registered therein, which appear to the Council to be granted after examination by any of the medical authorities in respect of a higher degree of knowledge than is required to obtain a certificate of fitness under this Act."

The question was accordingly referred to Mr. (now Justice) Bowen, who gave his opinion as follows:—"I am of opinion that Section 11, Clause 6; only gives the Council power to register higher qualifications in Dentistry. The knowledge referred to in that clause appears to me to be confined to knowledge in Dentistry." This opinion was brought before the Council at its next meeting, in March, 1879, and they then passed the following resolution:—"That the column for additional diplomas, memberships, degrees, licences, or letters be omitted in the forthcoming edition of the Dentists' Register." How Mr. Justice Bowen arrived at this con-

clusion it is difficult to understand, especially if the section be read as a whole. For, after stating who are to be registered and how they are to be registered, the Act goes on to say (Section 11, Clause 2) that "the Register shall, subject to the provisions of this Act, contain such particulars, and be in such form, as the Council shall from time to time direct." That is to say, the Register is to contain all the particulars which are *required* by the Act, and *may* contain such *other* particulars as the Council may think desirable. These two clauses taken together would seem to give the Council the most ample powers to deal with any such question as that above mentioned.

Apparently the Council itself was not quite satisfied with Mr. Bowen's opinion, for we find that in December, 1880, the advice of Messrs. Farrer Herschell, and Muir Mackenzie was asked respecting the interpretation of this clause. Their answer was as follows:—"We think that the only additional qualifications which should appear on the Register are those which express or imply fitness to practise Dentistry." This reply seems to us much more in accordance with the dictates of common sense, and it only remained for the Council to decide, as they had evidently power to do, what additional qualifications did "imply fitness to practise Dentistry."

The occurrence of the word "*additional*" relieves us from one difficulty, for it is an undeniable fact that no English qualification, except the Licence in Dental Surgery, does either express or imply a fitness to practise Dentistry. Of course we are aware that several eminent and skilful practitioners are fellows or members of the College of Surgeons and are not licentiates; but then they are not skilful practitioners by virtue of being members of the College. But if a man is a licentiate *and* also a member it cannot be doubted that he is likely to make a better practitioner than he would if he had either qualification separately; the one supplies the deficiency of the other, and the two make a complete whole. The question was not, however, whether a man who is M.R.C.S. only should be thereby entitled to a place on the Register, but whether a man who is already on the Register should have the privilege of recording qualifica-

tions in general surgery or medicine. The Council decided after a rambling discussion that "any registered Dentist holding any of the surgical qualifications recited in Schedule A of the Medical Act shall be entitled to have such qualification or qualifications recorded on the Dentists' Register as evidence of the possession of a higher degree of knowledge."

We look upon this decision as a most welcome one for two reasons. In the first place it will, we hope, encourage many of those who are now entering the profession to acquire the undoubted distinction which a qualification in general surgery confers; and, secondly, it removes the grievance complained of by those who are practising as Dentists, but who have only a qualification in general surgery. It was evidently unjust that such men should only be able to enroll themselves on the Register in such a way as to be undistinguishable from those who possess no diploma of any sort. We consider, then, that the profession is greatly to be congratulated on the decision thus arrived at, if only it be final, but we can scarcely congratulate the Council on the tone of the debate, nor do we think that it will add to its reputation as a deliberative assembly.

Literary Notices and Selections.

AN AMERICAN CRITIC ON THE GENERAL MEDICAL COUNCIL.

OUR American cousins have all along taken great interest in our Dentists Act and the various complications to which it has given rise. We reproduced last year in these pages a series of articles on this subject which appeared in the 'Missouri Dental Journal,' and another is now appearing in the same paper, about which we may have something to say when it is completed. The following is taken from 'Johnstons' Dental Miscellany,' the March and April numbers of which contain a full account of the proceedings of the British Dental Association and the decision of the Medical Council. We are almost tempted to give the articles in full, but as the subject is now becoming a little

stale and unprofitable, our readers will perhaps be quite content with an extract.—ED. B. J. D. S.

The number of men who registered up to August, 1879, as Dentists in the United Kingdom, was 5289—double the number contemplated by the gentlemen who were the founders of the Act of Parliament of 1878. About five hundred names were challenged by the British Dental Association. It was chiefly to consider this challenge that the Medical Council met. And what an antagonistic clashing there was of common sense and law! There were not wanting evidences that some of the leading legal luminaries of the land had been knocking their heads together to interpret the meaning of this and that phrase of the Act, and even then the Council afforded proof of the truth of the old saying, that the least common of all kinds of sense extant is common sense. The Act has a great deal to say about the rights of a *bonâ fide* Dentist, which rights must not be infringed on. He must be carefully guarded—a hedge is placed around him, and he is as carefully petted as Satan (with a characteristic disregard of truth) contended Job was. But these wise-acres in the Council had to be told by the lawyers what a *bonâ fide* Dentist is. To them he is a myth. We may each of us form an opinion as to the particular kind of look and standing this myth has; but individual opinions are not enough. What did the framers of the Act and the House of Common understand him to be? To get at this the Council must ask the Attorney-General and other great lawyers. These men, whose heads are too full of the contents of law tomes to be able to hold anything else, have come to the opinion that a *bonâ fide* Dentist is a man who pulls teeth. So long as a man can prove that he has pulled teeth, and that he is sometimes engaged in that work, he is accepted as a *bonâ fide* Dentist. So say the lawyers, and the Medical Council have accepted the *dictum* and acted on it. Thus the Register is to remain unpurged. Thus, despite the law, there will be kept on it the names of hundreds of persons who are essentially hair-dressers, but perhaps in practice as chemists, without any licence for that even.

I must admit that it pains me to write for the readers of the 'Miscellany' such humiliating facts concerning this country and its Dental standing. No one—not even those who are the most ardent and impatient reformers—expected that so great a reform as is contemplated by this Act of Parliament would be carried into effect at once. It could not be prevented that several hundreds of the men who

would register as Dentists prior to the enforcement of the new law would be a long way below the desired standard. But it was hoped that this number would be reduced to a *minimum*—that some sensible discrimination would be exercised in excluding men who made barefaced and fraudulent claims to be registered—that our high legal authorities would not go over bodily to the side of these interlopers. No one would insinuate that the Attorney-General and the other lawyers had been bribed, but certainly they could not have played more into the hands of barbers and tinkers if there had actually been money placed where it would do the most good—to adopt an American phrase.

But let it not be assumed that all the members of the Medical Council were in favour of disregarding the challenge of the Dental Association. Some of them raised their voices against it with vigour, and they have the thanks of the profession for it. It is gratifying to find that the Dentist's work is not regarded by the people nor by the members of the medical faculty as of the inconsequential character that it was years ago. Sir William Gull, for example, said at the meeting of the Council, that he should be sorry if it went forth to the world that they, as medical men, had decided that Dentistry was nothing but the work of extracting teeth. He regarded it as one of the chief functions of Dentistry to preserve teeth. That is well; and I hope the Council agree with him. It would have been much better, though, if they had acted on the principle contained in his words. John Bull is sometimes far too tenacious of what he erroneously calls "rights of individuals." He would destroy a thousand Russians for molesting one Englishman, and he often carries out this principle a little too far. He will let hundreds of patients suffer for their lifetimes rather than stop the freaks of one barber who professes to be a Dentist. If Dentists' patients were all Russians, or Boers, or Afghans, we could understand it—then John Bull would be logical in letting them be injured by English pseudo-Dentists. But he is very foolish to allow men, boys and apprentices, who have no claims to be regarded as Dentists, to be backed up by the law in their work of molestation of the happiness and comfort of the patients who are misled by their pretensions. I am in favour of observing men's rights—vested and other rights—but no man has a right to do wrong. Obviously it is wrong to pull out a tooth, which, if properly filled, would last a lifetime. This is done every day by these underlings who have excited the pity of the lawyers, and whose falsely-called rights are so carefully observed. Am I not correct, then, in my asseveration that

men who are incompetent should be prevented by the strong hand of the law from practising Dentistry, even if they have for a few years past beguiled their time and troubled the world by exercising their strength in wielding the forceps?

Dental News and Critical Reports.

THE GENERAL MEDICAL COUNCIL.

THE usual annual session of the General Medical Council began on April 26th and lasted five days. The greater part of the time was occupied by discussions on the preliminary examinations in general education which medical and Dental students are required to pass before entering on their professional studies, but some important Dental business was also transacted. In his opening address the President referred to this in the following terms:

“ Letters of importance from Mr. Tomes and others will be laid before you. In the construction of the Dentists’ Register a difficulty arose with regard to the real fitness of many persons who professed to be in practice and to possess a legal qualification as Dentists. This became at once a question of legal interpretation of an existing Act rather than one which this Council has at heart—namely, the education and professional character of registered Dentists. When the Council met in February for purposes connected with the Dentists Act only, it decided in accordance with the legal opinions laid before them, giving their judgment upon the facts as furnished to them. One of the results at which the Council had previously arrived was to exclude from the Register all titles other than those definitely stating a qualification in Dentistry. It is not to be wondered at that persons such as Mr. Tomes, a fellow of the Royal Society, and an eminent Member of the College of Surgeons, and persons who are Fellows of the Royal College of Surgeons, should resent as a hardship, and even an injury, that a title so honorable as a Fellow of the College of Surgeons of England, implying without question surgical knowledge and education of real value for the purposes of the higher problems of Dentistry, should not be entered in the Dentists’ Register. On the legal advice we have, such knowledge and such title are considered not to be higher in respect of Den-

tistry in the terms of the Act. If this be so, it is certainly a question for argument whether the Act should not be amended. I do not presume to offer an opinion that the Council would act illegally if it inserted such titles as higher titles, nor to say that a penalty would accrue if it did. The value of co-called higher titles has been made the subject of a question in the House of Commons, and will doubtless be considered at some future occasion. A motion will be brought before you on this subject so far as it affects the Dentists Act."

This Dental business was entered upon on Thursday the 28th. Dr. Haldane having been elected a member of the Dental Committee in the place of the late Dr. Andrew Wood, the following letter from the Secretary of the British Dental Association was read and ordered to be entered on the minutes:

12, George Street, Hanover Square;
Feb. 9th, 1881.

DEAR SIR,—I herewith enclose a copy of a resolution passed at a meeting of the Representative Board of the British Dental Association, and respectfully request you to bring it before the Council through the ordinary channel.

I am, dear sir, yours very truly,

JAMES SMITH TURNER,
Hon. Sec. B. D. A.

To W. J. C. MILLER, Esq., B.A.,
Registrar to the General Medical Council.

(Enclosed) "Extract from the minutes of a meeting of the Representative Board of the British Dental Association held on Monday, February 7th, 1881, Vice-President, Thomas Underwood, Esq., in the chair:

"Resolved unanimously: That the Representative Board of the British Dental Association beg respectfully to thank the General Medical Council for the prompt consideration it has given to the elucidation of certain provisions of the Dentists Act upon the interpretation of which considerable difference of opinion prevails.—(Signed) JAMES SMITH TURNER, *Hon. Sec. B. D. A.*"

The REGISTRAR then proceeded to read applications (mostly in terms of one or other of the two subjoined forms) from the following registered Dentists, who also hold medical or surgical qualifications, requesting that such qualifications be added to their descriptions in the Dentists' Register:—J. Ackery, R. Barnett, A. W. Barrett, W. C. S. Bennett, E. G. Betts, C. H. Bromley, H. Campion, F. Canton, A. Coleman, D. Corbett, D. Corbett, jun., F. Ewbank, J. A. Fothergill, A. Gibbings, D. W. Hogue,

W. A. Hunt, S. J. Hutchinson, T. T. Lyons, F. McClean, A. G. Medwin, H. Moon, P. Orphoot, G. S. Penny, E. Randell, H. Rogers, T. A. Rogers, E. Saunders, J. Tomes, J. S. Turner, R. H. Woodhouse.

(a) SIR,—On the ground that the diploma of membership of the Royal College of Surgeons of England both expresses and implies the possession of a degree of surgical knowledge, applicable in the practice of Dental Surgery, and, therefore, in this regard of Dental Surgery, higher than is required to obtain a certificate of fitness under the Dentists Act, I request you will insert with my name in the first column of the Dentists' Register the letters M.R.C.S. Eng., indicating the aforesaid membership, as an additional qualification in the forthcoming and subsequent issues of the Dentists' Register.

I beg to refer you to the Medical Register for evidence of my possession of the above-named qualifications. I rest my claim to the entry of this additional qualification in the Dentists' Register on Sect. 11, Clause 6, of the Dentists Act; and on the opinion 2 C of the Solicitor-General and Mr. Muir Mackenzie, published in the minutes of the Medical Council, to both of which I beg to direct your attention.

J. TOMES.

W. J. MILLER, Esq., B.A.,

Registrar of the British Medical Council.

(β) SIR,—On referring to the opinions of counsel (Farrer Herschel and Montague Muir Mackenzie, opinion C) published in the minutes of the Medical Council, I find it therein stated "That the only additional qualifications which should appear on the Register are those which express or imply fitness to practise Dentistry. If a candidate for registration desires to have such additional qualification registered we think that the Council can certainly require proof of such qualifications by the production of the necessary diploma, degree, or licence."

I also find in Section 11, Clause 6, of the Dentists Act that the Medical Council has power to "revoke or vary" the registration of additional diplomas.

I also find from the Dentists Act that the possession of a surgical or medical diploma, duly registered in the Medical Register, of itself, entitles a man to practise Dental Surgery, although not sufficient alone to give its holder a position on the Dentists' Register.

The possession of a surgical diploma in addition to a Dental one cannot be regarded as otherwise than an additional qualification of fitness to practise Dentistry, and on

these grounds I beg to claim the insertion of my qualification as M.R.C.S. Eng., as an addition to the L.D.S. Eng. in the next edition of the Dentists' Register. In proof of my holding this additional qualification I beg to refer you to the Medical Register.

J. SMITH TURNER.

W. J. C. MILLER, Esq., B.A.,

Registrar of the General Medical Council.

The foregoing letters were laid before the General Council pursuant to the following resolution by the Executive Committee :

Resolved :—"That the letters received from Mr. Tomes, Mr. J. Smith Turner, and certain other gentlemen, be submitted to the General Council, and that the attention of the Council be directed to the Opinions of Counsel given on p. 199 of Vol. XVI, and on p. 34 of Vol. XVIII, of the Minutes."

Dr. STORRAR moved—"That every registered Dentist holding any of the qualifications recited in Schedule (A) of the Medical Act shall be entitled to have such qualification or qualifications recorded on the Dentists' Register as evidence of the possession of a higher degree of knowledge." All persons entered on the Dentists' Register were entitled to practise, but he thought those who possessed them were entitled to put before the public any additional qualifications which were calculated to impress the public with the idea that they were better qualified. If a Dentist, after having passed his examination for a licence to practise Dentistry, went further and became a member of the College of Surgeons or any of the bodies enumerated in the Medical Act, he would be holding qualifications of a higher kind than a mere licentiate in Dental Surgery. The object of the Dentists' Register was to enable the public to see who were qualified and who were not. He would not go into the nice question raised by the lawyers as to whether a higher qualification meant a higher qualification in Dentistry and nothing else ; the question for the Council was whether it thought a Dentist was better qualified who held, in addition to his licence as a Dental Surgeon, the diploma of the College of Surgeons, for instance ; and if it thought him better qualified, why should not the diploma be recorded on the Register ?

Mr. TURNER said he was prepared to second the motion if it were made to read—"That every registered Dentist holding any of the *surgical* qualifications recited in Schedule (A)."

Dr. STORRAR accepted this alteration.

Dr. QUAIN then inquired whether the present motion was intended to rescind the resolution of the Council passed in

March, 1879—"That the column for additional diplomas, memberships, degrees, licences, or letters, be omitted in the forthcoming edition of the Dentists' Register."

Mr. TURNER said that that resolution did not touch the present motion, because the present motion did not specify that the qualification was to be recorded in any column, but merely that it was to be entered somewhere on the Dentists' Register. Moreover, power was given to the Medical Council by Sub-section 2 of Section 11 of the Dentists Act to put on the Register such particulars and to make the Register in such form as the Council should from time to time think fit. The opinion of the Solicitor-General and Mr. Muir Mackenzie was that the only additional qualifications that should appear on the Register were those which expressed or implied fitness to practise Dentistry. Did not the possession of a surgical qualification over and above the possession of the licence to practise Dental Surgery imply a superior degree of fitness? The Council would be doing an injustice to those members of the Dental profession who were something more than Dentists by not authorising the appearance after their names of those qualifications which represented a higher degree of knowledge.

Dr. QUAIN said that if the privilege was to be given of recording surgical qualifications he did not see why medical qualifications should not be also registered. Medicine had as much to do with Dentistry as surgery had; but the question was really a dry question of law. It was resolved formerly by the Council that the higher qualifications should be entered on the Register in a separate column, but some doubt was expressed as to the power to do this, and the Council wisely, before undertaking to do what they had no power to do, resolved that the opinion of counsel should be taken on the point. This was done, and Mr. Bowen, the present judge, was of opinion that the Act gave power to register higher qualifications in Dentistry only, and not in other subjects. The Council thereupon resolved to omit the column for additional qualifications, and he (Dr. Quain) thought it could only be restored by an amending Act empowering the Council to do so.

Mr. SIMON thought the introduction on the Dentists' Register of the sixty-two different titles which were recognised by the Medical Act would be at least inconvenient. They were not justified in assuming as a universal law that because a man was a member of the College of Surgeons he was a better Dentist; and if the meaning of the section were to be extended to include a higher knowledge of other subjects than Dentistry, where were the Council to stop?

If a man were a licentiate of midwifery or a Fellow of the Royal Society, were they to put these titles in? and if not, why not? As a layman he was satisfied that the intention of Parliament was that higher qualification in Dentistry only should be recorded.

Dr. AQUILLA SMITH wished to draw the attention of the Council to the real object of the Act, which was clear from the preamble, namely, that provision should be made for the registration of persons specially qualified to practise as Dentists in the United Kingdom. There were 565 licentiates in Dentistry registered, and of those only thirty applied for the registration of additional qualifications. If the Council agreed to allow the qualification of the College of Surgeons to be added as a special qualification it would create a feeling of hostility between the thirty and the remainder of the 565 registered Dentists, because the thirty would be pointed out as men of better education, and it appeared to him to be undesirable to create divisions among the Dentists in that way, although he thought the Council had the power legally to distinguish those who held additional qualifications.

Dr. BANKS agreed with Professor Turner that it was a hardship on such Dentists as had obtained the membership of the College of Surgeons not to be allowed to add that qualification to their names on the Register. He could not agree, however, with Mr. Simon in thinking that a man being a surgeon was not likely to make a better Dentist. If the Council could see its way to pass the resolution, it would tend to raise the standard of the Dental profession, which certainly was a desirable thing.

Dr. PITMAN said that members of the Council who expressed views against the proposal of Dr. Storrar seemed to him to lose sight of the real question at issue, because, while they admitted that additional qualifications in Dentistry were registrable, the question was who was to determine what were additional qualifications in Dentistry. He thought the Council was to determine that, because the Dental Act provided "That the General Medical Council might, if it thought fit, from time to time make, or, when made, revoke or vary, orders for the registration or removal from the Dentists' Register of any additional diplomas, memberships, degrees, licences, or letters held by a person thereon, *which appeared to the Council to be granted in respect of a higher degree of knowledge than was required to obtain a certificate of fitness to practise.*" The question for the Council was whether the membership of the College of Surgeons was a higher qualification as regards Dentistry. Professor Turner and Dr. Storrar seemed to think that it was, and he should

be glad if other members would now give their opinions upon that subject.

Dr. SCOTT ORR could not see that there would be any objection to additional qualifications being registered immediately after and following the name of the individual claiming to be so registered. If a man were a baronet he could put "bart." at the end of his name, or any other letters that he was entitled to. With regard to Dr. Pitman's observations as to the membership of the College of Surgeons being a higher qualification, he should consider that it was quite equal to the Dental qualification; and that was another reason why it should be registered.

Mr. TEALE said it seemed to him that the Act contemplated the Council deciding what was a higher qualification, and if the qualification in question were a higher qualification they were right in putting it on the Register. A person who qualified himself to be put on the Dentists' Register, and who became a member of the College of Surgeons, was, in his opinion, better qualified than such a person not a member of the College of Surgeons.

Mr. SPENCE said that, having practised surgery and anatomy for forty years, he had no hesitation in saying that a man possessing the qualification of one of the Colleges of Surgeons was better qualified than a mere licentiate in Dentistry. It had been said that if the Council registered one qualification it must register all, and the question was put whether the Council should not register licences of midwifery as additional qualifications; but he thought that the extraction of a fœtus and the extraction of a tooth were very different things.

Dr. QUAIN.—They both sometimes require forceps.

Mr. SPENCE.—They were, at any rate, sufficiently distinct. The question was, Should the public be prevented from knowing who were the best qualified men? He thought not, and on that ground supported the motion.

SIR JAMES PAGET thought that any person who held a diploma for the practice of surgery was fitter to practise as Dentist than one who held only a Dental qualification. The instances proving that were so numerous that it was hard to raise a doubt about it. The question as to what was the proper thing to do with a particular tooth involved considerations other than what should be done mechanically, because disease of the tooth might arise from various causes—persons might be syphilitic or scrofulous, and in those cases the advantages of a surgical education was very great. It was true with regard to Dentistry, as it was true with regard to surgery, that a man who was educated to treat one

part of the body was not so good a judge of what to do as he who was educated to treat all parts. It would be in the highest degree advantageous to the Dental profession if the members of it could be encouraged to seek a larger amount of knowledge than was included in their comparatively limited education. The Dental profession in England would stand far higher than in other parts of Europe in proportion as its members were encouraged to gain a general surgical education.

Dr. McCLINTOCK agreed with what had fallen from Sir James Paget. It would be a mistaken and retrograde movement if the Council were to throw any discouragement whatever upon men taking, not perhaps higher, but additional qualifications. Of course, the Council would not think for one moment of including any titles outside those recognised by the Medical Act, but it was not just that Dentists should not be allowed to record additional qualifications to those merely enabling them to practise as Dentists.

Dr. HUMPHRY thought that the whole question revolved round the little word "if." It was proper to record additional qualifications *if* the Council had power to do so. He thought the Dentists' Register was to be a register of Dental qualifications merely, and that the higher qualifications referred to were higher Dental qualifications. It should not be forgotten that the Council originally added the qualifications in question, and that in consequence of counsel's opinion they were compelled to omit them. The suggestion that they need not put them in an additional column was a mere quibble.

Mr. TEALE said that while being entirely in favour of entering the additional qualifications on the Register, he could not vote for Dr. Storrar's motion because the Council was not legally empowered to carry out the proposition. There was a grievance, no doubt, but that must be set right by an amendment of the Act.

Sir WILLIAM GULL thought if surgical qualifications were added, medical qualifications should be added also. He fancied he should make a better Dentist with his medical knowledge than he should without it.

Dr. QUAIN suggested that the case upon which the opinion of Mr. Charles Bowen was taken should be laid before the Council by Mr. Ouvry.

This suggestion was supported by Mr. TURNER, and

Dr. QUAIN then further proposed that the opinion of the Council should be taken as to whether Mr. Ouvry's advice should be requested on the point.

Dr. STORRAR, in replying, called the attention of the

Council to the fact that throughout the Act Dentistry was recognised as a branch of surgery. Dentistry and Dental Surgery were treated as convertible terms; and if the qualification conferred by the College of Surgeons in Dental Surgery was not a qualification in surgery, he would ask what was. The Act empowered the Council to insert "higher qualifications," and he did not know of any higher qualification in Dental Surgery in this country than the qualification of the College of Surgeons. He was astonished to hear Mr. Simon say the Council might just as well put in the Fellowship of the Royal Society. That had nothing on earth to do with Dentists. It was only reasonable that if the College of Surgeons examined gentlemen as to their knowledge of Dental Surgery, and conferred a qualification, the Medical Council should allow the person holding that qualification to be put on the Register with that higher qualification if he required it. The most extraordinary objection was that raised by Dr. Aquilla Smith, who said that the 500 licentiates in Dental Surgery would be jealous of those who were registered with additional qualifications; but he would ask, were the members of the College of Physicians and College of Surgeons in London jealous because some gentlemen had been raised to the fellowship of those colleges? In conclusion, he would say that his conviction, not only on professional grounds, but on strictly legal grounds, was that the applicants were entitled to have their other qualifications registered.

Mr. QUAIN renewed his suggestion that the Council should take Mr. Ouvry's opinion as to their power to act in the matter, and after some discussion the proposition was agreed to.

Mr. OUVRY, after referring to Section 11 of the Dentists Act, sub-sections 2 and 6, said he was of opinion that the Council could not put in the existing column of the Register any additional titles—they could only put the qualifications which entitled persons to be registered under the Act. To put in the additional degrees the Council must either restore the additional column or put them in the first column after the names. It seemed to him that the additional qualification to be entered on the Register must imply a higher degree of knowledge in Dentistry than that which was implied by the licentiate'ship. It was for the Council to consider whether the amount of knowledge required to obtain the qualification of the College of Surgeons was or was not greater than that required to obtain the licence to practise Dentistry.

The PRESIDENT having pointed out to the Council that the resolution did not specify where the additional qualifica-

tion was to be placed, put the motion, which was carried by thirteen against five. The majority consisting of Dr. Pitman, Sir James Paget, Mr. Bradford, Dr. Pyle, Dr. Storrar, Mr. Spence, Dr. Scott Orr, Mr. Turner, Dr. Leet, Dr. Banks, Mr. Teale, Dr. Fergus, and Dr. McClintock; whilst Dr. Humphry, Dr. Haldane, Dr. Aquilla Smith, Dr. Quain, and Mr. Simon formed the minority. The President and Dr. Pettigrew did not vote.

Dr. PITMAN then moved—"That the additional surgical diploma, membership, degree, licence, or letter be entered in the fourth column of the Dentists' Register, and after the original entries."

Mr. TURNER seconded the motion.

An amendment was then moved by Dr. SCOTT ORR, and seconded by Dr. MCCLINTOCK—"That any additional diplomas, memberships, degrees, licences, or letters be entered in the name column."

This amendment, on being put, was declared lost, and the original motion was then put, and carried.

The following communication from the British Dental Association was then read, and directed to be entered on the minutes:

40, Leicester Square.

To the General Medical Council.

Gentlemen,—The Dental Committee of the General Medical Council having pointed out, in the report read at a meeting of the Council on February 3rd, 1881, that in the list of persons submitted by the British Dental Association, as being falsely and fraudulently registered in the Dentists' Register, are the names of persons who are chemists' and druggists' apprentices; and the Solicitor-General and Mr. Muir Mackenzie having stated in their joint opinion (which in other points has been acted upon by the Council) that chemists' apprentices cannot claim registration on the Dentists' Register (see opinions marked II in the minutes of the General Medical Council, question and answer D., vol. xviii., page 35).

We, therefore, on behalf of the British Dental Association, respectfully ask that the Council will cause to be removed from the Dentists' Register the names of such chemists' apprentices.

JOHN TOMES,

THOMAS A. ROGERS,

EDWIN SAUNDERS,

JAMES PARKINSON,

THOS. UNDERWOOD,

J. SMITH TURNER (Hon. Sec.)

Business Committee of the B. D. A.

The Council then adjourned.

FOURTH DAY—FRIDAY, APRIL 29TH.

On the President moving that the minutes of the last meeting be confirmed,

Mr. SIMON inquired whether it ought not to be open to the minority of the Council who voted against the registration of additional qualifications by Dentists to record the fact that they did not assent to the confirmation of the minutes of the motion which the Council had been advised was an illegal one.

Dr. QUAIN said in most assemblies it was usual when a resolution was proposed, which was directly opposed to a previous resolution, which had been passed and acted upon, to rescind the former resolution before passing the second one. Perhaps the President would inform the Council what the rule was with regard to that point.

The PRESIDENT said he would take care that when the Council met again the best obtainable answer should be forthcoming. With regard to Mr. Simon's question, which was rather in the nature of a protest, those who wished to protest had only to vote against the confirmation of the minutes. The protest of the minority was recorded as distinctly as possible, because the names had been taken down and appeared on the minutes.

Mr. SIMON said the question was as to the completeness of the minutes, which were as follows:—"That every registered Dentist holding any of the surgical qualifications recited in Schedule (A) of the Medical Act shall be entitled to have such qualification or qualifications recorded on the Dentists' Register as evidence of the possession of a higher degree of knowledge." (See Dentists Act, Section 11, Clause 6.) Dr. Quain required that the names and numbers of those who voted for and against the motion respectively, and of those who did not vote, be taken down." There was no mention there that Mr. Ouvry was called upon to advise the Council, and he would move an amendment—"That before the words, 'Dr. Quain required that the names, etc.,' a sentence be introduced stating the fact that Mr. Ouvry was at this stage requested to legally advise the Council, and describing the purport of the advice which Mr. Ouvry gave."

Dr. QUAIN seconded the amendment.

Dr. PITMAN.—Would not it be more accurate to say that Mr. Ouvry was asked "to give his view of the legal interpretation of the clauses?"

Mr. SIMON.—That is legal advice.

Dr. STORRAR asked whether it was proposed to insert a

statement of Mr. Ouvry's opinion to be prepared afterwards by him. He (Dr. Storrar) had no objection to record the fact that Mr. Ouvry was requested to state his view, but he did object to Mr. Ouvry being asked to prepare an opinion which would really reflect upon the decision of the Council. They knew perfectly well what they were doing when they passed the resolution.

Sir JAMES PAGET suggested that the difficulty might be met by recording the fact that Mr. Ouvry's opinion was asked and that he gave it. It would be rather unfair to record Mr. Ouvry's argument on the one side and not record Dr. Pitman's argument on the other side.

Dr. STORRAR said he was speaking and acting yesterday on a view which he considered as good as Mr. Ouvry's, and after the matter had been decided by a distinct and large majority it was not a proper thing for the minority to step forward and attempt to prove that the majority had been legally in the wrong.

The PRESIDENT said that, generally speaking, when the advice of the solicitor was requested on important matters it was given in the form of a written communication. The amendment, if passed, left a duty on some person of considerable difficulty, namely, the duty of getting the advice of Mr. Ouvry and putting it on the Minutes. If the Council imposed the duty on him he should do so to the best of his ability, and after consultation with Mr. Ouvry.

The amendment was then put and lost by ten votes to five.

Mr. MACNAMARA then moved another amendment:—"That these words be inserted in the Minutes: 'Before Dr. Storrar's motion was put, Mr. Ouvry was asked to give, and gave, his interpretation of the Act as it bears on the present motion.'"

Dr. McCLINTOCK seconded the amendment, and it was put and carried. With the addition of those words the minutes were then agreed to.

The Report of the Finance Committee was then presented. It contained the following tables (p. 480) and explanatory remarks referring to the Dental receipts and expenditure of the Council:

Dental Finance.—Reference to Table (D) shows the receipts and expenditure of the Dental Registration Fund for the year ending January 1st, 1881. It will be seen that there remained then to the account of the Dental Fund a sum of £9000 of New Three per Cent. stock, and in the bank £824 8s. 11d., making a total of £9824 8s. 11d.; but it must also be noticed that, while the total income of this fund during the year, from all sources, amounted only to

TABLE D.—Returns to both Houses of Parliament of Receipts and Expenditure of the Dental Registration Fund of the General Medical Council, for the year ending January 1, 1881, made pursuant to Section XXXIII of the Dentists Act (1878).

RECEIPTS.			EXPENDITURE.		
£	s.	d.	£	s.	d.
BALANCE from 1879	10,668	13 4	GENERAL COUNCIL'S FEES AND OTHER EXPENSES . . .	262	2 6
Amount (deducted) to be repaid to			EXECUTIVE COMMITTEE'S FEES AND OTHER EXPENSES . .	196	17 6
ENGLISH BRANCH COUNCIL	179	12 0	GENERAL EXPENSES (House Expenses, Salaries, &c.) . .	491	6 3
REGISTRATION FEES:			DENTAL COMMITTEE'S FEES AND OTHER EXPENSES . .	121	16 0
65 Registration Fees at £5 each	325	0 0	PRINTING	83	18 1
63 Registration Fees at 5s. each	15	15 0	LAW EXPENSES	598	10 8
SALE OF REGISTERS for 1879			MISCELLANEOUS EXPENSES:—	£	s. d.
DIVIDENDS:			Auditors' Fees	15	15 0
One year's Dividend on £9281 15s. 3d. of New Three per Cents. (less Income Tax)	272	1 5	Additional Clerical and other Assistance	38	4 7
	£11,105	8 7	BALANCES:—		
			Cost of £9281 15s. 3d. of New Three per Cents	9000	0 0
			Amount in Bank on January 1, 1881	824	8 11
				9824	8 11
			Amount (to be deducted) to be repaid to ENGLISH BRANCH COUNCIL	527	10 11
				9296	18 0
				£11105	8 7

Audited and found correct,

QUILTER, BALL, CROSBIE, GLEGG, & WELTON.

January, 11, 1881.

Signed { RICHARD QUAIN, M.D. }
HENRY A. PITMAN, M.D. } *Treasurers.*
W. J. C. MILLER, B.A. } *Registrar.*

£616 7s 3d., the expenditure amounted to £1808 10s. 7d., leaving a deficiency of £1192 4s. 4d., to be met out of invested capital.

By request from the Committee, the Registrar has prepared the following roughly approximate estimate of the probable future annual income and expenditure of the Dental Registration :

Estimated Income.

Dividends	£274	0	0
Fees (at present rate)	250	0	0
<hr/>			
Total income.....	524	0	0
Deficiency	883	0	0
<hr/>			
	£1407	0	0

Estimated Expenditure.

Proportion of General Council's fees	£510	0	0
Fees for Executive and Dental Committees	117	0	0
Proportion of general expenses	500	0	0
Printing.....	150	0	0
Law expenses	50	0	0
Miscellaneous	80	0	0
<hr/>			
	£1407	0	0

This table shows a probable future excess of expenditure over income of about £880, which will have to be met by drafts on the invested capital.

RICHARD QUAIN, M.D., Chairman.

April 27th, 1881.

Professor TURNER called the attention of the Council to the fact that under the estimated annual revenue and expenditure there was a deficiency of £800, which was to be met out of the invested funds. If that annual deficiency continued, in about ten years the Dental Fund would be bankrupt.

Dr. QUAIN said the Committee anticipated in the future an increase in the funds to be derived from the fees.

Mr. TURNER thought in view of the drain on the capital fund invested in the name of the Dentists it became a matter for serious consideration whether something could not be done to diminish the annual expenditure, and suggested that that point should be referred to the Finance Committee for renewed consideration.

Dr. QUAIN said the legal expenses had been very heavy up to the present, but they were expected to be a great deal less in the future. The Medical Council was an expensive luxury, and if the Dentists had accepted the advice given them, and taken the Duke of Richmond's Board, all this

expense would have been saved. However, he hoped next year that the expenditure would be very little indeed over the income.

The PRESIDENT said that the question of diminishing the working expenses was a matter of great anxiety to many present and past members of the Council.

Dr. QUAIN reminded the Council that during the last two years the total income had exceeded the total expenditure by £2500.

A motion adopting the report was then put and carried unanimously.

The following report by the Dental Committee on the case of Alexander Schocke was then read :

With reference to the case of Alexander Schocke, the Committee finds the following facts :—“ This person is a German, and his position is analogous to that of Ackermann and Leopold, his shop being of the same character. He has been seen by the solicitor of the Council, and he states that he was apprenticed at Posen to learn Dentistry, and he produced a certificate of his having done so. He further stated that he served as Dentist at a hospital at Breslau for eighteen months, and subsequently at a military hospital at St. Petersburg, where he has drawn thirty or forty teeth in a day. Subsequently at Berlin he attended a course of lectures on anatomy. He drew many teeth while keeping a shop at the East End of London, where his skill as a Dentist was known, but since his removal to Rathbone Place his practice has been much less, he being not yet known in the neighbourhood.”

And it was moved by Dr. PITMAN, seconded by Dr. HUMPHRY, and agreed to :—“ That no sufficient cause has been shown for the removal of the name of Alexander Schocke from the Dentists' Register.”

The following report by the Dental Committee, with regard to the cases of David Hughes and Henry R. C. Kidner, was read :

Hughes, David, had, before July 22nd, 1878, served an apprenticeship to Mr. Thomas Gregory, a duly qualified and registered Dentist.

Kidner, Henry R. C., had, before July 22nd, 1878, completed his articles as a pupil to Mr. J. G. Plumley, a duly qualified and registered Dentist.

And it was proposed by Dr. PITMAN, seconded by Dr. HUMPHRY, and agreed to :—“ That David Hughes and Henry R. C. Kidner, having completed their apprenticeship before the passing of the Act, are duly registered.”

The following report by the Dental Committee, with

regard to the cases of John Thomas Lambert and Joseph Walker, was next read :

Lambert, John Thomas, has not replied to the communication made to him by the solicitor of the General Medical Council, and the Committee is therefore unable to give any further information than is given by Lambert's letter of August 21st last, in which he says that "I was at the time of the passing of the Dentists Act an articulated pupil or apprentice with Mr. Willey, Chemist and Dentist, Hoyland, near Barnsley, and previous to the passing of the Act was on the Register of the Pharmaceutical Society as an apprentice or student of the said Society, having passed the preliminary examination of the said Society. I was an apprentice with Mr. Willey more than five years, and was engaged the whole time more or less in the practice of Dental Surgery or Dentistry, and in the routine of a general chemist's pharmacy." It does not appear when his apprenticeship terminated. Mr. Willey is a registered Dentist.

Walker, Joseph, has not replied to the communication made to him by the solicitors of the General Medical Council, and the Committee is, therefore, unable to give any further information than appears in Walker's letter of August 25th last, in which he says "that, although an apprentice in pharmacy with Messrs. Heall and Co., I was engaged by Mr. Heall three days each week both in mechanical and surgical Dentistry, which Mr. Heall himself explained to the Registrar previous to his signing his declaration;" but Mr. Heall says "that Mr. J. Walker was engaged by me as an operating and mechanical Dentist, &c. Although at that time I had an interest in the business of chemist, &c., with my brother-in-law, Mr. Marks, I took no part whatever in the carrying on of the same, my whole time being taken up entirely with the Dental department. Since then I have relinquished entirely in favour of Mr. Marks." Mr. Heall is a registered Dentist.

Moved by Dr. PITMAN, seconded by Dr. HUMPHRY, and agreed to :—"That the cases of John Thomas Lambert and Joseph Walker be referred back to the Dental Committee for further inquiry."

The Council then adjourned.

FIFTH DAY—SATURDAY, APRIL 30TH.

The minutes of the last meeting having been read and confirmed,

Dr. QUAIN asked the President the following question :—
A resolution was adopted by the General Council on March

26th, 1879, having reference to an important feature in the formation of the Dentists' Register; a resolution entirely altering the resolution referred to was adopted by the Council on April 28th, 1881. The question is—Is it or is it not correct, as a matter of order, “that an original resolution should be rescinded before a new resolution is proposed?”

To this question the PRESIDENT gave the following answer:—“In answer to the question put to me by Dr. Quain, I have to state that, according to such usages as I can ascertain, it would be generally more strictly regular if an original resolution be rescinded before a new resolution is proposed. In the case referred to on this occasion, if a resolution had been framed setting forth that the resolution of March 26th, 1879, was rescinded, and the resolution of April 28th, 1881, substituted, it might perhaps have been a better course. But inasmuch as the latter resolution does in fact rescind the former, the course suggested was not necessary.”

The PRESIDENT stated that the Registrar had submitted to him the following questions, in regard to the Council's resolution in Clause 9 of the minutes of April 28th, 1881:—

(a) Are registrable surgical diplomas that are not registered in the Medical Register to be entered in the Dentists' Register? (b) What are to be considered as surgical qualifications? for instance, is the licence of the Royal College of Physicians of London to be considered such a surgical qualification, registrable in the Dentists' Register?

Dr. PITMAN moved that the President be authorised to answer these questions after a consultation with the solicitor of the Council. In this particular case the proper course would be to rest wholly on the advice of the solicitor, although the Council had not done so the other day.

Dr. HALDANE seconded the motion.

Dr. QUAIN said the other day some members of the Council argued that the Council was the proper body to decide what was a Dental qualification. Now it was asking the solicitor what was the definition of a surgical qualification. It would be better to say that qualifications already registered might be put in.

Mr. SIMON said there should not be any doubt about the position in which the Chairman of the Business Committee proposed to put the Council. The resolution passed the other day was understood by those supporting it to refer to a determined class of persons, and now, instead of that determined class of persons, they had substituted the algebraic “ x ,” or an unknown class of persons, to be defined by the President in conference with the solicitor.

Dr. STORRAR said he did not see any difficulty about the question. The Council had had a great deal too much law on this subject, and its common sense was much preferable. In Henry VIII's Charter to the College of Physicians there was a distinct declaration that the science of medicine included surgery. The licence of the College of Physicians was a licence which was given after examination in medicine and surgery, and surely that was a surgical qualification, and ought to be permitted to be entered in the Dentists Register.

Sir WILLIAM GULL thought that if the licence of the Royal college of Physicians of London was not to be considered as a surgical qualification, the Council would be doing very great injustice to the men who had obtained that qualification. The Council was assuming that Dentistry and Dental Surgery was the same thing; he thought they were two separate things. Then, again, the idea seemed to be that Dentistry consisted in pulling out teeth, whereas he thought the business of a Dentist was to save teeth. The Council had been moved by sentiment to do justice to the Dentists, although they no doubt at the same time had erred against the legislature. Probably they were quite right in what they had done; but as they were now to be governed by their sentiments, their sentiments should take them further, and lead them to say that all degrees reasonably entitled to appear on the Medical Register should appear on the Dentists' Register. If a man was a member of the University of London, or a licentiate of the College of Physicians, it would be only fair to the public that his name should appear as such. In the same way a qualification to practise midwifery should appear, because a man was a better Dentist who had a knowledge of the diseases of young children, and the way their teeth were affected by disease, than a man who had no such knowledge. He should be prepared to move a resolution to that effect.

Dr. SCOTT ORR said he should be prepared to second such a motion. He saw no reason why the degrees of universities or other medical qualifications should not be put on the Dentists' Register.

Dr. STORRAR said he should certainly vote against the motion of Dr. Pitman. The matter was a purely medical question, and the Council had made up its mind to disregard the opinions of the lawyers upon the subject, upon grounds which he considered infinitely more satisfactory than the grounds given by the lawyers. The motion was merely an attempt to get rid of the resolution of the Council which was passed the day before yesterday, and he hoped that those

who supported that resolution would vote against the present motion.

Mr. TURNER said that if the Council agreed to Dr. Pitman's motion, he did not think they would be acting antagonistically to the previous resolution. The President merely wished to know what were to be considered as surgical qualifications, and the motion merely empowered him to confer with the Council's legal adviser upon the question. As regards the other matter—whether registrable qualifications which had not been registered in the Medical Register should go into the Dentists' Register—that was simply a matter of registration. He saw no objection to the resolution.

Sir WILLIAM GULL: My amendment is that all qualifications in Schedule (A) of the Medical Act may be registered on the Dentists' Register.

Dr. QUAIN objected to Sir William Gull's amendment, on the ground that the question had been definitely discussed and settled by the Council. A resolution of a similar nature had been proposed and withdrawn, and it was contrary to all precedent to allow a question which had been decided to be re-opened in that way.

Sir WILLIAM GULL: I said it was a motion that I should press later on.

Mr. TURNER confirmed Sir William Gull in this statement, and said that Sir William Gull certainly reserved to himself the right to raise the question afterwards.

Mr. SIMON suggested that the question what was a surgical qualification could be raised by the representative of the College of Physicians moving that, for the purposes of this resolution, the membership of the College of Physicians be registered as a surgical qualification; but failing that, if action was to be taken on the resolution permitting additional qualifications on the Dentists' Register, it could only be done in the way proposed by Dr. Pitman—viz. by the President in consultation with the solicitor. Sir William Gull was not in order in bringing forward his amendment, because he had not given notice of it.

Sir WILLIAM GULL suggested that, pending the further consideration of the matter, the Council should refrain from taking action in pursuance of the resolution passed by Dr. Storrar's motion with regard to putting additional qualifications on the Dentists' Register. The Council could not do justice to the intricacies of the question, unless everything was thrown over for the sake of teeth.

Mr. MACNAMARA: The question is, in what way the Registrar is to enter in the Dental Register a qualification appearing in the Medical Register.

The PRESIDENT said that was not quite the question before the Council. The Registrar that morning, in consulting with members of the Executive Committee as to how the decision of the Council was to be carried out, foresaw that there might be certain practical difficulties, and, as an illustration of these difficulties, he put certain questions to the President; and the President, exercising such judgment as he could in the matter, thought, there being great difference of opinion in the Council on the matter, that it was not desirable that he should answer a purely technical administrative question, but that the opinion of the Council should be taken on the subject. If he were called upon to rule as to the nature of the amendment, he could not receive as an amendment any motion which reopened the whole question. The question was, whether diplomas not registered in the Medical Register were registrable in the Dentists' Register. There were a certain number of persons in the country in practice who held diplomas which, for various reasons, had not been registered. Were those persons to be refused permission to enter their qualifications in the Dentists' Register?

Mr. MACNAMARA said that under Clauses 26 and 27 of the Medical Act the evidence of a man possessing qualifications was the fact of his name appearing in the Medical Register. If a man came up with a surgical qualification, requiring the Registrar to enter it in the Dentists' Register, it was perfectly clear by the Act of Parliament that the only evidence as to the possession of that qualification the Registrar could take was the Medical Register, and, therefore, any person who required to have additional qualifications put on the Dentists' Register was obliged to bring up the Medical Register to prove that he had those qualifications.

Mr. TURNER called Mr. Macnamara's attention to Clause 27 of the Act, which said that the Medical Register was to be evidence "in all courts, and before all justices of the peace, and others, that the persons therein specified are registered according to the Act." It was a clause referring to the registration of persons who were to give evidence in courts and before justices of the peace.

Mr. MACNAMARA.—Then who are the "others?"

Mr. TURNER.—It is certainly not the Registrar.

Sir JAMES PAGET stated that the question was narrower than it seemed. The legal opinion given at the meeting of the Council was on the question whether any qualifications whatever, other than dentistic qualifications, should be registered. The Council decided that all surgical qualifications should be registered, and the only question remaining

was what was a surgical qualification under the Act. On that question the Council might decide by a vote that it would have certain things registered or not, or it might leave the matter to the President and Registrar, for them to take a legal opinion as to what a surgical qualification was, the legal opinion being subject to the decision of the Council that surgical qualifications should be registered.

Dr. HUMPHRY was sorry to complicate the question further, but the Council had passed a resolution that the surgical qualifications recited in Schedule (A) of the Medical Act were to be entered on the Dentists' Register. There were no such things as surgical qualifications under the Act. There were neither surgical, medical, nor obstetrical qualifications; they were qualifications of practitioners under the Act, and that was an additional reason for giving weight to what Mr. Simon had said.

Sir WILLIAM GULL said that, after what the President had stated, he should give notice of motion that all qualifications admitted in Schedule (A) of the Medical Act be registrable in the Dentists' Register at the option of the persons whose qualifications were so entered. He thought a man had no right to be put on the Dentists' Register unless he was entered on the Medical Register.

Dr. Pitman's motion was then put and carried, there being thirteen votes in favour of the motion.

In the course of the sitting Dr. STORRAR moved, in pursuance of notice of motion, "That the standing orders as regards the duties of the Executive Committee be reconsidered by the Council." He was not sure that he should be inclined to press the motion, but he wished to make a statement upon it. He had in the present session referred to what he considered to be the extreme zeal of the Executive Committee in taking up subjects and dealing with them in such a way as to supersede the action of the General Council, and to almost prescribe to the General Council the course which the Council should take. In doing so he thought the Executive Committee had altogether exceeded the duty which they were called into existence in order to perform. The duty of the Committee was to consider and report to the Council upon any questions submitted to them. Of course, there might be cases of urgency in which it might be desirable that the Executive Committee should act independently of the Council, but it should only be done in cases of emergency. The next point was that the Executive Committee had taken upon itself to do the business of the English Branch Council. Many statements might be made with regard to the motive that induced the Executive

Committee to practically supersede the Branch Council of England, but he believed that they had got it into their minds that they were to do as much as they could, to leave as little for the General Council to do as possible; and as the Branch Council for England was a very bland body, with nothing pugnacious about it, to absorb it altogether. The fact must not be overlooked that there was plenty of business for the English Branch Council to do. But there was a much more serious question as to the manner in which the Executive Committee had dealt with the Dentists' business. There was a considerable sense of soreness outside the Council amongst the Dentists with regard to the manner in which the Dentists' business had been conducted. The leaders of the Dentists had been sincerely desirous of improving the status of their profession; they had put themselves into the hands of the Council, and they had a right to expect that any questions affecting their interests should be dealt with by the Council in the most efficient way possible. They also had a right to know what the Council was doing, so as to give them an opportunity of communicating their opinions to the Council with regard to the matters on which they were competent to give advice. Last year two opinions of counsel were obtained by the Executive Committee, and a motion was made that they should be published and made known to the Dentists, which he (Dr. Storrar) supported, but the motion was not carried because it was said there was a conflict between the opinions. After the Council had risen, however, the Executive Committee set to work to take their own course as to the manner in which the several applicants for registration should be registered. He had looked in vain in the minutes of the Executive Committee to see in what way the question was laid before Sir Farrer Herschell and Mr. Muir Mackenzie. It might have been done under the general resolution that the solicitor was to take steps to get information, but there was no record in the minutes of the Executive Committee of how the case was drawn. Mr. Vaughan Hawkins, who had been for years consulted upon questions of law, was not consulted on that occasion. There might be good reasons for that, but the junior counsel was the man who got up the case for the senior counsel, and it was singular that, without explanation, Mr. Vaughan Hawkins had been omitted, and an entirely new counsel brought into the field. When, in common with the other members of the Council, the legal opinion, marked "strictly confidential," was received by him (Dr. Storrar), he was burning to show it to Mr. Tomes and some of the other leading Dentists, but he was bound in honour not to

do so; and yet who was more entitled to know what the opinion of the counsel was than those Dentists? The Council had been called upon mechanically to follow the opinion which was laid before it, and it simply endorsed what was laid down to it as the law by the lawyers. Since then, however, the question had been discussed by Dentists, men of business, solicitors and barristers, and the leading Dentists were strongly of opinion that the opinions were unsound. At the present moment it was a question whether the Dentists would come forward and take the judicial opinion of the courts, or make up their minds to put up with what had been done, and trust to time to clear the Register of the people who had been most unwarrantably, according to their views, entered upon the Register. In order to get the judicial opinion of the Solicitor-General, both sides of the question should have been put before him. There was a rankling feeling on the part of some of the Dentists that this Council, instead of being the guardians of this new profession, had been hardly and unfairly dealing with it. When, at the last session of the Council, he (Dr. Storrar) expressed his regret at the position of the Dentists, Dr. Quain said that it was the result of amateur legislation, and that if they had adopted the clauses of the Duke of Richmond's Bill relating to the Dentists, all this would not have happened. Mr. Tomes, in answer to an inquiry, had telegraphed that morning, saying that the Dentists Act as it passed differed in machinery greatly from the clauses that were in the Duke of Richmond's Medical Bill, but that the alterations were made by the Government, and not by the Dentists. In the face of that statement it was not fair that the Dentists should be made the scapegoats. He did not wish to do anything which would indicate animosity towards the Executive Committee, but to impress upon the Committee the fact that very considerable dissatisfaction had been created by their proceedings during the last eighteen months. He wished the Executive Committee to moderate their exceedingly large appetite for business, and to be more guarded as to the manner in which they dealt with such great public questions as those involved in the administration of the Dentists Act. If it was the pleasure of the Council he would willingly withdraw the motion.

Dr. PYLE seconded the motion.

Dr. AQUILLA SMITH observed that Dr. Storrar said dissatisfaction existed in the minds of the Dentists in consequence of the action of the Council; but Mr. Tomes seemed to say, in his letter, that the defects in the Act arose from the action of the Government, which acquitted the Dental

Committee and the Executive Committee from many of the charges which Dr. Storrar had made. He thought it would be probably satisfactory if the Dentists took steps to test the legality of the action of the Council. Dr. Storrar's statement that there was great dissatisfaction outside the Council amongst the Dentists was further negatived by the fact that the British Dental Association had written thanking the Council for its prompt consideration of the questions arising on the Dental Act.

Dr. Storrar's motion was then, by the permission of the Council, withdrawn.

The remainder of the sitting was devoted to general medical business.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, MAY 2ND, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

MR. HENRY SEWILL exhibited models of two cases of protrusion of the upper central incisors. The pathology of this curious deformity was, he believed, still quite undecided, and he should be glad if any of those present could throw any light upon it, or throw out any suggestions with regard to its etiology or treatment. The disease occurred only in women, and was not noticeable before the age of twenty-five years. The teeth then began to protrude, but did not become loose until at quite a late stage of the disease. There was no discharge from the gums, no inflammation, no wasting of the alveoli, and no similar disease of the other teeth. Yet in process of time the inconvenience and deformity became so great that the patient was glad to have the teeth extracted and substitutes inserted. He showed also, by way of contrast, a model of the mouth of a girl only eighteen years of age, showing protrusion of the incisors with wasting of the alveoli. This was quite a distinct disease, and one which was more frequently met with, though rarely in so young a patient.

Mr. DENNANT suggested thumb-sucking as a possible cause. The state of things shown by one of the models was just what might be expected in a case where this habit had been continued up to a late age.

After some remarks and suggestions from Mr. HUNT, Mr. PARSON and the PRESIDENT.

Mr. SEWILL replied that the deformity could scarcely be

due to thumb-sucking, since it did not make its appearance until the patient was about twenty-five years of age, Nor was there in either of the cases referred to anything in the condition of the lower teeth or under lip which would account for the teeth being thus forced out.

Mr. GADDES read notes of a case of severe facial neuralgia cured by stretching the infra-orbital nerve, which had been forwarded to him by Mr. J. R. Gurner, L.D.S. Eng., of Adelaide, South Australia. The patient had suffered from pain in the left cheek and side of the lip for six years, gradually increasing in intensity during that time, until at last she could not bear the lip to be touched, could take no solid food, and dreaded even to drink, on account of the suffering it caused her. Mr. Gurner first extracted a number of decayed stumps in the hope that this might relieve the pain, but no improvement following, Dr. Gosse, of Adelaide, cut down upon the infra-orbital foramen and stretched the nerve freely. The patient had a slight return of pain from the third to the eighth day after the operation; it then ceased, and she went home a month later completely relieved.

Mr. HUNT showed a gag, invented by Mr. Rose, of King's College Hospital, which he considered an improvement on Mr. Thomas Smith's gag now generally used. This one could be introduced between the closed teeth and then expanded, and was altogether very easily managed. It would be made to fit either a large or a small mouth.

The PRESIDENT then called upon Mr. Kinsey to read his paper on the "German Method of Teaching Deaf Mutes to Speak."

Mr. KINSEY said that the subject which he was about to bring before them, being outside their usual professional experience, would probably be new to many of those present; and yet, considering what frequent opportunities Dental practitioners had of giving advice concerning the education of the children who were submitted to their care, it was important that they should have some knowledge of what had been done during the last few years towards improving the education of deaf children in this country.

It was a popular idea that deafness and dumbness were inseparably connected, but this was not the case; deaf people could not only be taught to speak, but also, *apparently*, to hear, and the fact that so many were not possessed of these accomplishments was simply the result of ignorance and prejudice.

There were three methods now employed for the education of deaf children. First, the system of sign and finger spelling, technically known as the "French" method, because systematised and adopted as the national method in

France about 150 years ago. This system, which was the one which had been generally used in this country, taught a deaf child to become dumb.

The second system, known as the "combined," was identical with the preceding, with the addition that the child was taught to speak words and phrases somewhat after the manner of a trained parrot. The third was the "German" system, so called because it was established and nationalised in Germany about the year 1770, and it proceeded on the supposition that a deaf child was physically and mentally as capable of spoken language as a hearing one. And this was actually the fact so long as the brain was healthy, the organs of respiration, phonation, and articulation being also normal, and the sight good.

In the education of a deaf and dumb child, the first step was to gain his attention, to accustom him to obedience and discipline, and to develop his powers of observation, &c. The next was to regulate the respiration, which was generally defective; then came exercises with the tongue and lips, and then, at last, the development of articulation was entered upon.

Mr. Kinsey gave an interesting description of the way in which this was done, giving examples by way of illustration. In order to enable a child to speak properly, he had to learn to articulate no less than twenty-five vowel sounds and thirty-one articulations, or, as they were generally called, consonants. The child learnt to pronounce the sounds by watching his teacher's mouth; he was then taught to write the letters representing each on a board and to pronounce the sound from that, gradually combining the sounds into words. Lip-reading, articulation, reading, and writing were thus taught simultaneously. Next the child learnt to speak the names of objects, then followed the use of interrogatives and verbs, and then, when he had learnt the use of language, other subjects, such as arithmetic, geography, history, &c., were gradually introduced. Mr. Kinsey added, as a proof of the capacity of deaf-born persons to acquire knowledge, that he had known individuals so affected who could speak three languages.

From the fact that this system had only recently attracted much attention in this country, and that it had of late been rather widely taken up by the press, many people supposed that it was something entirely new, but this was by no means the case. Isolated instances of deaf and dumb people who had been taught to speak had been recorded from very early times, but it was not until the latter half of the eighteenth century that attention was generally directed to this subject

by the labours of two eminent men, who did not confine their teaching to two or three pupils, but who devoted their lives to the work, systematised their respective methods, and founded institutions by which they could be generally diffused. One was the French Abbé, De l'Epé, who commenced his work about the year 1755 in Paris, and the other a German named Heinecke, who, after spending some years in perfecting his system, founded a school at Leipsic in 1778. The first was the founder of the finger-sign method, whilst the latter established the system by which the dumbness arising from deafness was entirely done away with.

Unfortunately, the French or "silent" system was adopted in this country as well as in our colonies and in the United States. This was partly due to the superior energy of its inventor, and partly to the fact that a certain amount of instruction could be more rapidly and cheaply given by this method than by the other. But whilst the finger system only enabled the deaf to communicate with those of their own class who had been similarly instructed, and with the small number of hearing people who were acquainted with the system, the oral method enabled them to communicate freely with their neighbours; and it was a fact that many deaf people who had been thus taught were able to sustain conversation in such a manner that their affliction would not at first be noticed. This system, which had for a hundred years been generally adopted in Germany, had gradually gained ground in Switzerland, Italy, and even in France, and was now at last making itself known in England.

Mr. Kinsey concluded with some statistics, showing that there were in England at the census of 1871 about 20,000 deaf and dumb, the number having of course increased since then. Of these, about 5000 might be reckoned to be of school age, and there was accommodation in existing institutions for about 2200, who were being trained for the most part to the use of their arms and hands instead of their voices. Of the remaining 2700, the greater number were growing up without any education whatever. He considered that this was a great opprobrium to a rich country like England, and a convincing proof that this was work which philanthropic charity was quite unable to cope with, and which required the active assistance and supervision of the Government.

He hoped that those present would do their best to make the public understand what a grievous wrong was being done to the deaf in this country in compelling them to suffer an unnecessary affliction—dumbness. And that they would

remember that to redress this wrong increased school accommodation, more teachers, and larger funds would be required. If the public could once be made acquainted with the state of the case, he believed that funds would be liberally provided until such time as the Government could be induced to undertake what he believed to be its duty, and if what he had said that evening would in the least degree forward these objects he should be quite satisfied.

The PRESIDENT remarked that most of those present must be acquainted with some deaf people, and must therefore take an interest in the paper they had just heard. He himself had been getting deaf of late, and he found that he had insensibly acquired the habit of watching the lips of those with whom he conversed, though it had not before occurred to him to seek a reason for it.

Mr. CHAS. ROBBINS said that when he was a boy about ten years of age he lived for two years and a half in the same house with a deaf and dumb man who was over thirty. This man took a great fancy to him, and after a time he (Mr. Robbins), by way of amusement, began to teach him to speak, and with such success that at the end of two years the previously dumb man could say about 150 words.

Dr. BUXTON remarked that if Mr. Robbins could do so much merely out of boyish amusement, it would be evident that those who had acquired experience and gave their whole attention to this subject could not fail to produce good results.

Mr. WOODHOUSE asked whether wearing a beard and moustache did not interfere with lip-reading?

Mr. STOCKEN said he had heard Prof. Morley relate how he was conversing one evening with a party of gentlemen, and noticed that as it got dusk one of them became silent and ceased to reply to the questions addressed to him, but that when lights were brought he resumed his part in the conversation. He then found to his surprise that this gentleman was quite deaf and understood what was said to him by means of sight only.

After the discussion had been continued by Messrs. LYONS, SEWILL, CANTON, ARTHUR UNDERWOOD and CHAS. TOMES,

Mr. KINSEY stated, in answer to questions which had been put to him, that it was found in practice that children who had been born deaf was generally easier to teach than those who had become deaf later. The wearing of a moustache did not interfere with lip-reading, in fact he had noticed that several very successful continental teachers were abundantly furnished in this respect. He had known of other instances like that mentioned by Mr. Robbins, but

generally speaking speech could only be properly acquired by the deaf in childhood.

At the next ordinary meeting, which will be held at 40, Leicester Square, on Monday, June 13th, at 8 p.m., a paper will be read by Mr. David Hepburn on "Suppuration connected with Diseases of the Teeth." Casual communications will be read by Mr. Hilditch Harding, Mr. Edwin Cox, and others.

FRED. CANTON,
T. F. KEN UNDERWOOD, } *Hon. Secs.*

NATIONAL DENTAL HOSPITAL AND COLLEGE.

THE Annual Distribution of Prizes to the successful students of this Institution took place at the Beethoven Rooms, Harley Street, on the evening of the 3rd inst., Erasmus Wilson, Esq., F.R.S., in the chair.

The DEAN (Mr. Thomas Gaddes) opened the proceedings by reading his report for the past year:

During the past year there has been given an official, but perhaps not a conclusive, interpretation of certain clauses of the Dentist Act of 1878, according to which there is no gainsaying the State recognition of all who are upon the Dentists' Register. That many of those so registered should have opportunity to improve their professional knowledge the executive of the National Dental Hospital and College decided to admit registered practitioners to short terms of hospital practice and single courses of lectures, in precisely a similar manner as the General Medical Schools are open to any one who pays the required fees for what is wanted. These educational facilities have been taken advantage of by many. There can be no question as to the benefits such a step has conferred, not only upon those who have availed themselves of it, but also upon the public who seek their services.

In the year 1879, fourteen new students entered our school, but during last year twenty-one new students joined the College. These facts carry the evidence of progress on the face of them.

The work done by the students is very satisfactory, and the gold fillings made by the prizemen in Operative Dental Surgery cannot be surpassed in any kindred institution. With regard to the theoretical portion of their studies,

the students have creditably acquitted themselves in the several examinations.

Mr. Rose last year received the prize for Operative Dental Surgery, and the certificate of honour for Dental Surgery. To-night he is to be presented with the prize medals for Dental Anatomy and Physiology, for Dental Surgery and Pathology, and for Dental Mechanics; also, last, but not least, the "Rymer Gold Medal" for General Proficiency. Mr. Mountford will receive the prize for Metallurgy, and Mr. Hughes the certificate of honour. Mr. Mansell, who last year distinguished himself by carrying off the Gold Medal, has to receive the prize medal for Operative Dental Surgery. In virtue of being prizeman in this subject, he has been appointed Assistant Demonstrator. Mr. Bailey has been awarded the prize for the best piece of Mechanical Work, also the certificate of honour for Dental Mechanics, for Dental Anatomy and Physiology, and for Operative Dental Surgery. Mr. Pidgeon has to be presented with the prize for the best set of Notes of the lectures on Dental Surgery and Pathology, also the certificate of honour for his merit in that subject, and a certificate of honour for Operative Dental Surgery. Mr. Bailey and Mr. Pidgeon so distinguished themselves in that subject by their high-class work that a certificate of honour has been awarded to each. Mr. Spain has to receive a certificate of honour for his paper on Deformities of the Mouth.

We have to express our indebtedness to Dr. W. St. George Elliott for the kindly interest which he has shown, and the very able assistance which he has given us from time to time. It is a matter worthy of much more than self-congratulation that our American friends resident in London have so liberally, and, in so many instances, rendered us such valued services in the past, and yet offer the warm hand of fellowship and co-operation for the future.

The Hospital premises have recently been considerably enlarged, in order to meet the requirements of the rapidly increasing number of patients. With that extension of premises there have also been provided greater facilities for teaching, and better accommodation for our pupils. The more widely the capacity of our school is known, and by careful nursing and diligent supervision continue the production of such good work as the National Dental College is now doing, we need not have any misgivings as to the future.

In conclusion, it remains for me to briefly express the deep sense of appreciation felt by the staff of the Hospital and College of the dignity given to the proceedings of this even-

ing by the presidency being occupied by a veteran specialist, a lifelong teacher revered in his profession, and one whose name has for some years been associated with the National Dental College.

The prizemen were then introduced to the Chairman by the respective lecturers, and the distribution of prizes being concluded, the Chairman delivered the following address :

Ladies and Gentlemen,—I think if for once I leave out the gentlemen I shall be expressing more particularly the idea which is passing through my mind. We have just lost one of the greatest and most distinguished men of the day—I need not mention his name—who has, in all his works, pointed out that the success of man depends upon the support and the interest which is taken in him by woman. Upon the present occasion I feel sure that the prizes which have been given to the gentlemen who have been before you will have had their value greatly augmented by the presence with which you have honoured this ceremony. You no doubt take a deep interest in the success in life of the young men of the world ; you feel that if they are successful here in the reception of prizes, which they have been studiously engaged in search of for a considerable length of time, they are the men who are most likely to make good sons and good husbands. (Applause.)

It is not the moment to call your attention to the origin of Dentistry, nor to cast one's thoughts to its earliest manifestations on the face of the globe, but it has been suggested, and tradition has handed it down to us, that a beautiful stopping of the teeth was one of the special characteristics of the ancient Egyptians ; and, according to this view, that the stopping of teeth must have commenced long before the deluge, nay, must have originated with the very creation of the world. But two of your body, Mr. Warner and Mr. Coleman, have, in course of an inquiry which they themselves made in Egypt, ascertained that this notion of the stopping of teeth by the Egyptians was founded upon error. The Egyptians had the custom of covering their mummies and the faces of their mummies with gold leaf, and some portion of this gold leaf hanging about the teeth gave rise to the notion that they made use of gold for the purpose of stopping the teeth. In real truth I believe that the great advances which have been made in this department are traceable to a very short distance from the present period, and that they may be embraced within the present century. Let me allude to the manufacture of artificial teeth—a manufacture which exhibits a great advance in the progress of Dental art. Next we have the invention of vulcanite, and then we have those

important methods of stopping which, at the present day, convert an imperfect tooth into an organ capable of performing its duties almost as thoroughly as if it were perfect and sound. Many of those present, particularly the ladies, would hardly, until this evening, have formed an idea of the extent of study necessary for the pursuits of the Dentist; that he must needs be acquainted with the anatomy and the physiology of the mouth in a state of health; that he must be able to distinguish between those conditions, which are a diversion from the standard of health, which constitute what is called pathology; that he must make himself acquainted with the best mode of operating; that, moreover, as you have heard and seen this evening, he must be an apt mechanic and capable of using his powers in that direction, not only upon the living mouth, but also in the production of machinery or contrivance which may be necessary for the comfort of the mouth itself. We have had also before us this evening one gentleman who undertakes the removal of any of those irregularities of the mouth which might interfere with personal appearance, and we know how wonderfully able Dentists are in removing appearances about the mouth which, if they were allowed to continue, would give rise to very great inconvenience and, above all, spoil the comeliness of an otherwise beautiful face.

Not, however, content with the study of the mouth and the teeth, and the diseases of both, and the contrivances for removing the teeth and for making those adjustments which are necessary for the comfort of the mouth, we have heard, moreover, that there is another study which it becomes necessary that they should be acquainted with—metallurgy—that they should be obliged to pass through the labours of the laboratory, to examine and test the qualities and nature of metals in order to adapt them to the necessities of the diseases which they have under their control. It is clear that it is not sufficient at the present day to write up the word “Dentist” over one’s door for the purpose of ensuring either success to the individual or reputation with the general public.

There is a story, which many of you may have heard, of a Dentist of that quality, who, having been visited by a patient, and that patient having placed himself in the chair and having submitted somewhat awkwardly to the application of a Fox’s key, which shook the very foundations of the chair upon which the patient was seated, at last succeeded in bringing away a mass of something in the Fox’s key, and having completed what appeared the duty which he had engaged himself upon, he then forthwith began to dance

about the room in high exultation. When the patient asked him why he did that he said "It is the first tooth I ever pulled out." (Laughter.) In the present day we are happily not exposed to operators of that character; but we have seen to-night appearing before this table the stuff out of which, not only good operators and distinguished professional men in their department of life, but likewise, I trust and believe, gentlemen may be made. The Dentist aspires to something more than to be a mere puller of teeth: he asks for a status in society, and he has succeeded by his industry and determination in attaining it. We have heard the Dean this evening especially make reference to the Register which enables the public to know who are Dentists and who are not Dentists; it is a public recognition of their position as Dentists; and if we trace them a little further and find them educated in schools such as these, we may be quite sure that we are trusting ourselves in the hands of men who are worthy of our highest trust, and who will discharge their duties towards us most honestly and perfectly.

But while I have said a word for ourselves, and another word for those gentlemen who have been prizemen upon the present occasion, it behoves us likewise to cast a thought upon those senior men who have been the leaders in this progress of instruction. (Applause.) You may have seen the zeal with which the gentlemen on either side of me have spoken this evening, when they have referred to their own subject, when they have referred to their own school, and the manner in which the instruction has been carried out and communicated there; indeed, it would be hardly possible for us to separate this evening to the pleasures which the Dentists have further procured for us, and the harmonies which are ready to receive us, without feeling that the Dentists of England, and especially those of the Institution with which we are now connected—gentlemen who are wisely engaged in perfecting that branch of scientific surgery with which they are associated—men who will not leave a stone unturned to make Dentistry as perfect as possible—are those who will not only relieve the pains of the moment but will give us the means of utilising our happiness and our comfort for a considerable number of years. For it must be admitted that the Dentist not only removes our pains but he contributes to our comfort in eating, to our powers of digestion, and thereby gives us not only temporary comfort but actually is the means of the prolongation of life. (Applause.) Ladies and gentlemen, I feel that you will all separate, as I shall leave this place this evening, with the satisfaction that we have been associated with men who are doing their duty

thoroughly towards society, and to whom our deepest thanks are due. (Applause.)

Mr. OAKLEY COLES.—We should not like to separate to-night, and I am sure none of us would like to leave this room, without recording our very deep and profound thanks to you, sir, for the obligation you have placed us under by presiding on this occasion. To have you with us is a most desirable thing; to have you with us in the capacity of Chairman is a still more desirable thing; but most desirable of all is to hear from a gentleman holding the high position held by Mr. Wilson expressions on the present position of Dental Surgery, on the present position of this school, and on our prospects in the future. This is the summing up of our obligation to you, and I am sure the meeting will heartily join me in thanking you for being present with us to-night. (Applause.)

The resolution was unanimously agreed to.

The CHAIRMAN.—Ladies and gentlemen, I feel at the present moment in a somewhat difficult position, and am taxing myself as to what I have done. You have been kind enough to thank me, and I am only too happy to return my thanks; but as I have wasted all my words in my speech I have no words left in which I can fully express the kindly feeling which I entertain towards you, and also my gratitude to you for the very kind manner in which you have been pleased to receive my remarks.

A concert of excellent vocal and instrumental music, conducted by Mr. Charles Davieson, followed.

Miscellanex.

DENTISTRY IN POLYNESIA.

THE Dentists of the Solomon Islands, though somewhat heroic in their treatment, are said to be but little inferior to their European brethren. When a man wishes to have a tooth or two replaced, a couple of assistants hold him firmly, while the operator, propping the patient's mouth open with pieces of bamboo, proceeds down along the gum until he has cleared the surface of the jaw-bone. Into the cavity thus made along the gum he inserts a piece of tortoise-shell or mother-of-pearl of the requisite length, and then binds the gum up on each side of the new tooth with a kind of vegetable glue. After a few days' feeding on liquid diet, the

wound generally heals ; and it is a common sight to see old men with almost all their teeth replaced in this fashion.—*Family Herald*.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

The following gentlemen passed their first professional examination for the Licence in Dental Surgery during the recent sittings of the examiners :

Mr. Henry Wyles, Leeds.
Mr. James Lindsay, Edinburgh.
Mr. Edward Innes Ayton, Edinburgh.
Mr. Thomas Gaddes, Carlisle.
Mr. Joseph Smithson Thomson, Dublin.
Mr. Hume Purdie, Alford.
Mr. Robert Peel Thomson, Dublin.

And the following gentlemen passed their final examination and were admitted Licentiates in Dental Surgery :

Mr. Frank Harrison, Sheffield.
Mr. James Stewart, Perth.
Mr. Thomas Gaddes, Carlisle.
Mr. Edward Innes Ayton, Edinburgh.
Mr. Maximilian Frank Simson, Lee, Kent.
Mr. Hugh Fraser, Largs, Ayrshire.
Mr. Henry Wyles, Leeds.
Mr. Ernest Burt, Weymouth.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

IN the April list of those who obtained the Dental licence of this Corporation, the address of Mr. Jas. H. Parkinson should have been given as "St. Helen's" instead of "Hulme."

ANDERSON'S COLLEGE, GLASGOW.

MR. JOHN AUSTIN BIGGS has been appointed Dental officer in the room of the late Mr. J. C. Morison, L.D.S.

GLASGOW DENTAL HOSPITAL.

THE Treasurer requests to be allowed to acknowledge the receipt of an annual subscription of two guineas from Messrs. C. Ash and Sons of London.

NEWCASTLE-ON-TYNE DENTAL HOSPITAL.

WE are sorry to find the name of Mr. G. F. Tate again figuring in a paragraph if possible more silly than that to which we recently called attention. The 'Newcastle Examiner' of May 6th informs its readers that "this accomplished Dental surgeon has the special recommendation of having spoiled the mouths of the Egyptians!" As the result of a pretty long experience of journalism we can confidently assert that editors do not indulge in these pleasantries unless they think they will be acceptable to those referred to. We hope that Mr. Tate will quickly undeceive them, and that he will believe us when we tell him that though such puffs may cause a little temporary notoriety, they are likely in the end to do him a great deal more harm than good; and that industry and conscientious work will do more to get him a practice than a volume of such rubbish. This advice will apply to other energetic young men besides the one we have named. Let them remember that "most haste is often least speed."

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE PUFF OBLIQUE.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I should be glad to have your opinion of the enclosed advertisement which I have cut from the 'Times' of May 4th. It appears to me that if the object of this talented member of our profession is simply what it professes to be, then the 'Times' is not the best advertising medium by which to attain it. But the number of capital letters, &c., appended to his name would certainly lead one to infer that this is, to say the least, not the *sole* object of his announcement. Would it be too much to expect that the authorities of the Irish College should remind him of a certain declaration which he signed not so very long since? I am, &c.,

NEMO.

DENTISTRY.—FINISHING LESSONS given in mechanical dentistry (cleft palates and all other surgical cases) to gentlemen who have been unable to acquire a thorough knowledge of this branch. Terms for the course of 12 lessons, 10 guineas; single lessons, one guinea.— — — — —, L.D.S., R.C.S., F.S.S., by curriculum (St. George's and Dental Hospitals, London) (address in full).

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

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ANSWERS TO CORRESPONDENTS.

“ARTICLED.”—We are not aware of any such practice; it certainly is not general.

“JUNIOR.”—We cannot give an opinion unless we know more about the case: you omit all reference to some of the most important points which are required for the purpose of diagnosis.

Communications have been received from the Secretary of the College of Surgeons of England, the Secretary of the Faculty of Physicians and Surgeons of Glasgow, the Secretaries of the Odontological Society of Great Britain, the Secretary of the National Dental Hospital (London), Messrs. J. R. Brownlie (Glasgow), Thos. Gaddes (London), Geo. Beavis (Newport), “Nemo,” “Back Again,” “Articled,” “Junior,” &c.

BOOKS AND PAPERS RECEIVED.

‘Reminiscences of a Dental Surgeon.’ ‘Transactions of the Ohio State Dental Society.’ ‘Missouri Dental Journal.’ ‘Gazette Odontologique.’ ‘Dental Advertiser.’ ‘Specialist.’ ‘Pharmaceutical Journal.’ ‘Lancet.’ ‘British Medical Journal.’ ‘Medical Times and Gazette.’ ‘The Oracle.’ ‘L’Odontologia.’ ‘El Progreso Dental de la Habana.’ ‘Newcastle Examiner.’ ‘Worcester Times.’ &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

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VOL. XXIV.

Dental Surgery and Medicine.

THE CHEMICAL AND PHYSICAL EFFECTS OF FILLINGS UPON TEETH.

By THOMAS FLETCHER, F.C.S.

THE article on this subject by Dr. Mayr, in the 'British Journal of Dental Science' for May 15th, is one which cannot be allowed to pass without comment. Two things he states can readily be taken for granted. First, that "his practice in Dentistry is very limited," second, that "the task he has undertaken is almost too difficult for him." Any one reading his paper with a knowledge of the subject would at once give him credit for correctness, at least, on these two points. Why he should attempt to do what he has done, knowing so well his own incapacity, is hard to see. It might be desirable to know how he connects "lazy schoolboys" and "algebra to equations in the third degree" with Dentistry, but it will be better to examine at once his positive statements.

First, we will take the remark that "*gold certainly does not* exclude moisture as well as *any* of the other fillings." To any one who has actually tested the moisture tightness of soft gold or of cohesive gold properly packed with ball-faced pluggers, the statement is an absurdity. I am not by any means a first-rate operator, but I will undertake to make a plug of either soft or cohesive gold absolutely tight against penetrating dyes, and any second-rate operator who understands his material and instruments can do the same easily.

If Dr. Mayr eats "oyster stew at a temperature of 130° F.," getting it carefully in contact with his gold fillings, and then "within six seconds drinks ice water at 32° F.," getting this also carefully in contact with his gold fillings, one can only regret his want of common sense and consideration for his own feelings. His example is not likely to be followed generally.

He states that amalgam is acted on by the liquids of the mouth sufficiently to fill up small cracks between tooth and filling and to become *cemented to the tooth*. May I ask if any operator has ever seen such an effect as this in one single case in the course of his practice?

He states that "*all* silver amalgams are very soft, shrink considerably, and lose relatively easily their mercury." If he will take pure precipitated silver and mix it with no more mercury than is absolutely required to make a hard plug, packing it in a glass tube which is sealed so firmly as to prevent lifting, he will find in a few days that the expansion has burst this tube unless it is excessively strong, and that the plug is so hard as to be cut out only with great labour. It is certainly hard enough to stand twenty years on the grinding surface of a molar.

Again, he says, "the mercury evaporates from platinum as if no combination had taken place." If he had said *when* no combination takes place, he would have been correct; mercury and platinum combine with difficulty, and only under peculiar conditions, and it is evident he has not succeeded in obtaining this combination.

He is "at a loss to say why makers put gold or platinum in their amalgams if it is not to give them some nice taking name." If he will take an alloy which has platinum *in proper combination* and the same without platinum, he will find that the former sets hard in about one fourth the time, that it is much harder, and that it is far less liable to alter in form or ball up after hardening. A mixture of platinum with other metals without proper combination is of no value, and is apparently what he has experimented with. Platinum cannot be got in combination by the processes usually published. The use of gold is to make an amalgam cleaner and pleasanter in the hand, and its use, except to a limited extent, is to be condemned, as it reduces the setting power seriously. He says oxyphosphates "*resist*" far more than oxychlorides. If he will take a first-rate phosphate of zinc cement and a first-rate oxychloride of zinc, he will find that the resistance to all solvents is wonderfully similar, the difference is detected only by careful experiment, and, if anything, on the average is in favour of the oxychloride. It is no test to take a good sample of one and a bad one of the other. The phosphate cements have the advantage of being harder and less liable to be damaged by moisture, but so far as actual permanence is concerned, in the hands of a good operator there is no choice. The phosphate cements are at present in the fashion, and are more generally successful in the hands of careless, slovenly operators, but with proper manipulation

and proper care the oxychlorides are, when good, quite as permanent and have the advantage of being far less opaque. The careless operator is still a large element, and he has to be studied by the makers of filling materials; for him the phosphates are a blessing, as his carelessness is less liable to cause failures with this than with any other white filling.

When a writer begins by acknowledging that his task is too difficult for him, and then goes on to prove this statement most thoroughly, his contribution is liable to do much more harm than good.

ON ATTACHING PORCELAIN CROWNS TO THE ROOTS OF TEETH.

A paper read before the Students' Society of the Dental Hospital of London, May 9th, 1881.

By WALTER HARRISON.

MR. PRESIDENT AND GENTLEMEN,—When the crowns of teeth, more especially those in the front of the mouth, are so much decayed that they cannot by filling be rendered useful, their place may, under certain circumstances, be supplied by means of artificial crowns constructed upon their roots. It is unnecessary to enumerate the various diseases and mechanical injuries of the teeth which lead to these operations, and the conditions under which they may be performed, further than is embodied in the general statement that the root destined to receive the crown, together with the surrounding parts, should be free from disease.

Mr. Balkwill divides roots suitable for pivoting into three classes.

1. Those in which the pulp is alive.
2. Those in which the pulp is dead but the peridental membrane is healthy, and there is no fistulous opening on the gum.
3. Those in which the pulp is dead and a fistulous opening has been established with a slight discharge, but in which the root is otherwise sound and healthy.

The fangs of the six superior anterior teeth are better adapted for the reception of these crowns than any others in the mouth. The roots of the first bicuspid frequently terminate in two points and are always more or less compressed; the lower incisors are also slightly compressed, and therefore possess the same disadvantage, as they cannot receive a pivot

sufficiently large to support the crown. The most satisfactory cases are those in which the nerve in the root has retained its vitality. It should be extirpated by an extractor rather than by an escharotic. Mr. Read has, however, recommended destroying the pulp with nitric acid, which seems to be a useful method, and in the cases in which I have seen it used it gave but little pain.

The preparation of the root for a pivot is a very simple process; it is somewhat modified according to the kind of crown used.

The operation is commenced by removing such portions of the faulty crown as may be still standing. A deep groove should be made, if possible, all round the neck by means of the engine with a fine corundum wheel, a file or saw; the operation of excision is completed with the excising forceps, the best form of which is the American straight pattern of a large size, as all the force should be placed upon the tooth. If the forceps only be used, there is some risk of shaking the root in the socket, splintering it within the gum, or fracture of the alveolus. If caries has extended, or the crown broken down, to the margin of the gum, the file only is necessary.

The exposed surface of the root must be cut down a little below the free edge of the gum on the labial aspect, and on a level with the gum on the palatine side. The next step consists in reducing the pulp canal to a cylindrical form to within a short distance of the extremity of the root. This may be effected by various forms of instruments, the most suitable being five-sided broaches or fissure burs of different sizes; from time to time the depth of the cavity must be gauged or the drill may pass through the apical foramen.

The root having been thus prepared, the artificial crown must be selected to correspond in size, shape and colour to the one which it is to represent. The crown must be fitted with great accuracy, the joint between the crown and root being made as perfect as possible, for the tooth is thus rendered more permanent. Any space offers a receptacle for the lodgement of food and other foreign substances, which produce unpleasant, if not injurious effects. The tooth may be fitted to the mouth by means of the dental engine; the canal of the root and the hole in the porcelain must be directly opposite one another. The ordinary mode of attachment is by means of a wooden pivot, the best kind being fine grain hickory. This should be passed through the draw plate: pivots thus compressed absorb less moisture and therefore there is less expansion.

In arranging the crown, care must be taken to prevent it from being struck by the teeth in the opposing jaw. It often happens that where the natural crown has been gone for some time, the corresponding tooth in the opposite jaw becomes elongated and strikes against the porcelain. This can be prevented either by filing the elongated tooth, or by grinding out the palatal portion of the artificial one; a small space should intervene between them. The length of the pivot being ascertained, it should before being introduced, be coated either with a sheet of gold or better with a solution of gutta percha and chloroform, and the end of the canal filled with gutta percha or cotton wool and creasote. The crown is then gently pressed into position with the thumb and fingers only; even with great care it will sometimes be split by the expansion of the hickory. A root may occasionally split from the same cause, or by a blow on the crown, and when this happens the root must be extracted.

The liability of a wooden pivot to break off at the point where the crown joins the root, as well as to become offensive and difficult to remove, led to the introduction of metal pivots. Platinum has been employed more than any other metal, but gold may be used under certain conditions; pivots made of this material can be bent at any angle and easily removed.

There are several methods of preparing the root to receive metal pins; in some cases a simple enlargement of the canal is sufficient, but I always prefer to insert a metal tube. Two principal methods of fixing the tubes are generally employed:—(1.) By screwing a thick gold or platina tube into the root, which has been opened up with suitable instruments, and cutting a thread in the root; this is a simple and excellent operation and has one great advantage, it may be performed at one sitting. Mr. Balkwill, of Plymouth, has introduced an improved form of this method. "Having cut the tube to the right length and found that it fits perfectly, you next prepare to fix it permanently in its place by smearing the inside of the root and the outside of the tube with a little Sullivan's cement. In order to prevent the screw clearing out all the amalgam before it, it is well to file away the thread at the end of the tube; before inserting the cement, a small pellet of cotton wool should be placed at the end of the root, which is removed when the tube is screwed home, bringing with it the surplus amalgam." "These tubes are made by bending a piece of dental alloy or platina plate (No. 6) round a piece of pin-wire to form a tube; withdraw the wire and solder up the seam; place a short piece of wire in one end and pass through the draw plate to

No. 25. Cut a good thread on the outside of this tube; then cut it into half-inch lengths, solder a piece of old spring wire round one end, to form a shoulder to strengthen the orifice; place the tube in the screw plate and screw up to the shoulder; then bore the hole out with a straight drill a little larger than the wire to be used." A smaller size tube is used for laterals.

The other method of fixing a platina tube is by means of gold or amalgam. The canal should be freely opened up, especially at the palatal aspect, to allow for the thickness of the mineral tooth, and the cervical portion of the canal should be well undercut to prevent the filling from falling out. The tube, which must be slightly barbed, can be placed in any position. To fix it in the required position a small portion of osteo is placed at the end of the canal, a piece of cotton wool having been previously placed there to prevent closing the foramen; a wire may be inserted in the tube to hold it more conveniently. Having the tube now fixed, the remainder of the cavity is packed with cohesive gold or Sullivan, which should be carried well round the end of the tube. The great advantage of this method is, if caries has extended below the gum the root may be restored, and there is no fear of splitting even a very frail root. Great care must be taken in removing the wire from the tube not to disturb it. When the amalgam is thoroughly hard, the tube is ground down and the root made as concave as possible, to prevent any lateral movement of the crown. The tooth is now to be fitted: in easy cases a tube tooth is quicker, but in flat teeth we have a great variety of shapes and sizes. Generally it is not necessary to take an impression; but if it is desired to get the exact direction of the canal, a piece of wire which fits loosely is placed in the tube and a piece of binding wire wound round its free end; thus the length and a sharp impression of the termination of the canal is obtained. The crown, after being fitted, may be attached to the pin by means of solder or vulcanite. In soldering the tooth it is necessary to make a small plate to cover the root. The simplest way to do this is to place the pin in position, the portion that is to be attached to the crown bent towards the palate; a small piece of thin plate with a hole in the centre is pushed up the wire firmly on to the root. A mark is made on the pin where it is to be fixed, this is removed and the plate soldered to the pin with a little No. 3 solder in the spirit lamp. The pin is again inserted in the root, and the plate malleted all over the same with a small point and trimmed to size; the plate must not extend beyond the surface of the root. The fitted tooth

is backed with platina foil and fixed in position with shellac ; it is withdrawn and placed in plaster and sand for soldering. This should be done with either gold plate (18 carat) or pure gold, using plenty of metal to make a contour. In using vulcanite, a plate to cover the root is not necessary ; the pin must be soldered to the tooth, and an impression of the root taken with wax fastened to the crown, and built up to the required form, so that it may be withdrawn and at once placed in the flask ; in cases where tube teeth can be used easily a little time is saved. It is always advisable to use split wire for the pivot, that at the last it may be opened and made to fit the tube tightly ; when split wire is not used, it is generally necessary to barb the pin or use floss silk, or wrap a little gold foil round the pin.

In performing these operations one great point to bear in mind is to have the pivot pin as long as possible, as the length of the pin greatly assists in steadying the crown and adds to the strength.

Teeth may often be greatly improved by shaping them with the corundum wheel and file. Two and three teeth may be soldered to a plate and attached to one pivot.

When these methods are properly carried out, I consider them very safe and satisfactory operations ; should any evil result arise, removing the crown for a few days is often all that is required.

Dr. Webb has brought before the notice of the profession some methods of attaching crowns to the roots of teeth permanently. He says : " In cases where a portion of the crown has been fractured, and when it seems better to save the remainder than only to save the root, a method like the following may be adopted :—By placing a piece of porcelain on the labial wall of a crown and fixed with oxychloride of zinc, or held in position with the left hand and narrow pieces of cohesive gold packed around at the back of the porcelain, the gold joint between the enamel and porcelain being about half a line in width. If the pulp be living in such a case of fracture, a suitable piece of porcelain can be made and fitted to a gold plate and this extended, anchored, and built into a cavity prepared to receive it.

Building crowns of gold and facing them with porcelain makes a most secure and satisfactory, though difficult, operation.

He also gives the following method for attaching a whole crown permanently with gold :—After preparing the root and closing the foramen with gold and cutting the edges (which have been previously well exposed by pressing the gum away) to within half a line of the margin of the gum, a

gold wire with a fine sharp thread cut upon it should be accurately fitted in the pulp chamber. To the platina pins of the porcelain tooth a tube made of gold plate should be fitted; this is opened, riveted, closed, and then soldered. A thread must be cut upon the cylinder to correspond to that upon the wire to which it is to be attached; this is done that the crown may be more securely placed upon the root. A groove should be cut along each side, and sometimes along the cutting edge of the porcelain into which the foil is packed to secure greater strength. The rubber dam must be applied in this operation. The porcelain should be fitted so as to leave a small space to be filled with gold between the crown and the root. To hold the parts in position a little osteo of the consistency of cream is placed at the end of the root; the wire is screwed into this and is held securely in place. After the osteo has crystallised sufficiently it must be cut away, also the dentine, with small burs to secure a good anchorage for the gold which is now packed in solidly round the wire and over the margin of the root, along the tube, and in the grooves on the artificial tooth; while packing round the wire the crown can be moved a little to one side or the other until the contour is commenced. The contour should be made full, and in trimming off care must be taken that the tooth of the opposite jaw does not strike against it. This method cannot be easily applied beyond the canines.

Dr. Bonwill has lately brought out a simple and permanent system of attaching porcelain crowns to the roots of any teeth. This method consists in inserting a platinum pin into the canal and fixing it to the crown with osteo or amalgam. He gives the following description of the operation:—"The canal having been enlarged and the foramen closed, the platinum pin is cut rather shorter than the length of the root, as it cannot be pressed through the amalgam at its full length. It is made three cornered and pointed at both ends, more at the root end, and well barbed with a sharp knife to and from the line between the root and the crown, and bending the crown portion, for an incisor, towards the palate which will hold the crown firmly. While the amalgam is setting, the crown having been adjusted to its place on the root and the canals dried, place soft amalgam entirely up to the end of the canal, and when full take a pointed, three-cornered instrument and thrust it through the amalgam to make way for the platina pin, which is then well pressed up the root gradually with a pair of pliers as far as it will go. A thin, flat-pointed plugger should be used to pack the amalgam round the pin. Before

completing this, the crown should be placed on to see if the pin can assume its proper position; if not, the crown can be forced either way and the pin will follow.

The crown being filled with amalgam and grasped between the thumb and fingers, is pressed hard home; an excess of amalgam must be left round the pin. The opening on the palatal side of the crown can be filled with hard amalgam, the surplus is left for finishing off. The excess of mercury is pressed out by the force used to place the crown in position. When more than one pin is used, they can be filled in between on the grinding surface and wedge the pins apart against the walls of the porcelain tooth, which will assist in retaining them. This operation can be done at one sitting, or the pin may be fixed at one visit and the crown at the next. When a crown has to be replaced from fracture, cut off the surplus amalgam round the pin until the new crown fits accurately, fresh amalgam is laid over the old and the crown pressed up as before and the repair is complete. If a tap-hole is required to be made, pass a fine silk thread down along the side of the pin, build the amalgam round and withdraw the thread after the crown is on, but before the amalgam is set.

These crowns have to be made of a certain shape to admit a pin into the substance of the tooth. They may be fixed with oxychloride of zinc, and in using amalgam a light-shade tooth must be used as the metal within makes it appear much darker.

Cases sometimes come under our treatment which for some reason or other the root has been removed. For such cases Dr. Litch has adopted the following simple process:—A very accurate impression of the parts must be taken and a metal cast and die made, and a thick gold or platina plate is carefully adjusted to the palatal and approximal surfaces of the teeth; fit in the interspace a plate porcelain tooth slightly too wide. The neck of the artificial tooth should rest slightly on the gum. The plates are now adjusted to the mouth and cemented together with resinous wax; it is then removed from the mouth and embedded in plaster and sand. In cases where one of the neighbouring teeth is devitalised the pulp canal can be opened up and a pivot pin inserted into it and soldered to the plates. Having soldered the parts together and neatly finished off, it is gently heated and a thin film of gutta percha laid on it, and while hot pressed into position; the use of gutta percha being to prevent the teeth from decaying where the plates rest.

In cases where both the teeth are alive, a "counter-sunk" hole is bored in each of the base plates, and a split platinum

pin is packed with gold in the natural tooth. The tooth is then placed in position with the gutta percha as before; gold is packed round the platinum pin and into the counter-sunk holes on the plate. An excellent method, and one in which as many teeth as six and seven have been attached, has been introduced by Dr. Webb. "In cases," he says, "where no root remains, suitable cavities are made on the approximal surfaces of each tooth next to the space where the root is missing. An impression is taken and a plate crown fitted and backed with pure gold, the backing extended a short distance beyond the tooth each side, and a wire soldered for inserting into the cavities." In cases where the pulps are living in both teeth, the wire must be so arranged as to fit accurately, and to be made secure in the cavities prepared for them. The tooth is held in position by oxychloride of zinc.

The operation of pivoting and attaching crowns to the roots of teeth, when performed under favorable circumstances, produces very satisfactory results, but unfortunately we are not in a position always to say what bad result may arise. In the majority of cases the patient feels no further inconvenience than that of the operation; but cases occasionally arise in which inflammation is set up and the face swells. Great pain is then felt which is at first local, and afterwards is diffused to the neighbouring parts, and sometimes severe constitutional disturbances are caused. Eventually suppuration occurs within the socket, and the pus finds its way to the surface; it spreads over a larger surface than an ordinary alveolar abscess. Mr. Tomes mentions a case in which tetanus and death followed the operation of pivoting, and in another case an epulis was developed with considerable rapidity.

Sometimes these consequences may be prevented by taking the precaution of filling the root tightly for a few days to see if any evil results are likely to present themselves. Where the nerve has been removed by an instrument, it is unusual to get any irritation; but where the nerve has died spontaneously it is not uncommon for an alveolar abscess to form. Should the pivot become at all painful the patient should be directed to return immediately; if the alveolar periosteum is becoming inflamed, painting the gums with Tinct. Iodi (double strength) and Flemming's Tinct. Aconiti., in equal parts, has a good effect, and if possible the crown should be removed for a few days. If the disease has advanced to suppuration, great relief may sometimes be given by making a free incision, and by drilling through the alveolus with a free-sized drill over the apex of the root; it is easily distin-

guished by touch when the instrument reaches the root, and the operation gives far less pain than might be anticipated. Should this, however, fail, the root must be extracted before the neighbouring teeth become involved. The inflammation, if treated early, may generally be controlled and the root saved.

These methods of replacing teeth stand foremost on account of their neatness and comfort before all other contrivances for mounting artificial teeth, and especially when these are required in the mouths of young patients it becomes almost imperative that we should make every effort to avoid inserting a plate.

PRIMAL CAUSE OF DENTAL CARIES.

(A paper read before the Pennsylvania State Dental Society.)

By H. GERHART, D.D.S.

THE title of this short paper is perhaps a misnomer, as it treats not so much of the active cause of dental caries, nor of the process of which caries is the product, as it does of that which makes caries possible, or opens the door to the agents which are factors in the process of that retrogressive metamorphosis which we call caries.

There are two generally-accepted physiological ideas, which we will thus formulate:

1. The normal development or growth of any organ is in a great measure dependent upon its actual performance of the functions for which it was designed; and

2. Waste consists in the superannuation, death, and disintegration of individual cells, whose atoms are then taken up by circulatory currents to the excretory organs, and by them evicted from the system.

To these we may add—

3. The restoration of waste, or the birth of new cells to occupy the place of those eliminated as above stated, is as much dependent on the due performance by the organ implicated of its natural work as is the original development of that organ.

From the foregoing we may legitimately draw the conclusion that from the birth of cells there is required an adequate degree of excitation in development and restoration of waste, this being furnished by the performance of function by the organ.

When waste is not restored, the organ, if of soft tissue, is diminished in size or volume, and we call this result atrophy. If a muscle be subjected to continued and extraordinary exercise, there is an accretion of cells or tissue and the result is a healthy hypertrophy.

A tooth differs from other organs in that it does not develop by growing in size or extending its borders, but by building itself up internally towards its centre, and by the appropriation of calcific elements, indurating and strengthening itself.

As in development a tooth does not increase in size or volume, so in the non-restoration of its waste or in its atrophy it does not diminish in volume, nor in its healthy hypertrophy does it increase in volume, but does in atrophy diminish in density, and in hypertrophy increase in density.

There are some who do not believe that the teeth are subject to this process of waste as are other organs; but at this day no one denies that there is some sort of circulation in the structure of a tooth, at least that there is a current into it; and if into, why not out of, a tooth?

The idea is, however, daily gaining ground that there is life and circulation in even the hardest enamel; that there is change is conceded, and this change is by no one claimed to be molecular. Can it be anything else than physiological? There are, indeed, some transcendentalists who affect to believe that wherever there is molecular change there is life.

I make the proposition, as being in theory in accord with the foregoing, that the primal cause of dental caries in this country is that the teeth are not required to perform a sufficient amount of mastication, thus preventing their proper development and the restoration of their waste, thereby throwing open the doors to the influence of external agents.

Accepting this as the theory, let us see what there is of experimental verification, and this entirely from personal observation. My attention was first drawn to this class of facts several years ago, while making some observations on the effects of tobacco-chewing on the teeth. Other things being equal, chewers of tobacco as a class suffer less from dental caries than those not chewing tobacco; although the use of tobacco acts on the teeth in other and more patent ways, the dynamic influence is the most potent.

In a family of five children whose parents have good teeth—much above the average—the three eldest, whose diet has required somewhat more than the average of mastication, have good and dense teeth. The mother, having great faith in bread and milk, insisted on a cow, and for twelve years

from their infancy the two youngest children lived mainly on bread broken into milk. The result was in the main good health for the two boys, but lamentably inferior and sensitive teeth. Some years ago, by my advice, these boys were put on harder fare, with special instruction as to mastication, and there has been most manifest improvement in their teeth.

Some months ago a young woman of nineteen years was sent to me for an examination of her teeth. A glance demonstrated that for years these teeth had seen no service. With few exceptions they were carious, and all had a peculiar cloudiness, which is almost invariably seen in unnourished teeth of young subjects. Inquiry brought out the fact that for about seven years these teeth had done no work; everything not plastic was soaked before eating, or bolted whole. As you may suppose, dyspepsia supervened. This being a case of that passive kind of firmness which indicates not a strong will, but a strong "won't," advice was useless, and the teeth are doomed.

Eight years ago a young lady of fifteen or sixteen came under my hands with a very fine set of teeth, dense, yellowish, and compactly shaped. Although she bestowed great care on her teeth, I observed latterly that there was an increasing rapidity in the progress of decay and increasing sensitiveness, with diminished density—in other words, a steady retrogression. I advised a diet requiring considerable mastication, and was surprised to learn that for a number of years, on account of a constriction, deglutition had been possible only with plastic or fluid food.

Many years ago I obtained from an Indian cemetery an upper maxillary with every tooth in position and intact. On the bicuspid and molars every protuberance had been worn level, and on all the approximal curves broad facets had been worn. When you remember the slight motion the adjacent teeth have on each other, you can imagine the amount of mastication these teeth must have done.

Instances might be cited without number; indeed, I might give you personal experience of carving at my own table, and masticating the tail of the sirloin steak for thirty years with salutary effect, but I spare you. I think, gentlemen, it will be found that the most profound investigation and the closest observation will bring us ultimately to this basal fact—that the primal cause of dental decadence in this country is and has been the failure in the performance of function, or their natural work, by these organs. Whether this failure arises from the plastic or semiplastic condition to which so much of our food is reduced by cookery, or from

the reprehensible habit of bolting our food, because of American haste, the result is the same.

We all know that the pride of our cooks is that their dishes shall melt in the mouth, and I have seen the crew of an express train on one of our trunk lines dispatch a substantial supper in waiting for them at a four-minute station.

If there is truth in the foregoing, our duty as Dentists and professed benefactors of our race is obvious.—*Dental Cosmos*.

Hospital Reports and Case-Book.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM APRIL 1ST TO APRIL 30TH, 1881.

Number of Patients attended	1120
Extractions { Children under 14.....	378
Adults.....	427
Under Nitrous Oxide	37
Gold Stoppings	76
Sheets of Gold used, independent of Pellets.....	68
Other Stoppings	255
Advice and Scaling	89
Irregularities of the Teeth	59
Miscellaneous.....	145
Total operations	1466

R. DESMOND ASHBY,
House Surgeon.

British Journal of Dental Science.

LONDON, JUNE 1, 1881.

IN the last number of this journal we republished, from an American source, an article on "The Chemical and Physical Effects of Fillings upon Teeth," which we fully expected would elicit some replies. And in this we have not been disappointed, for it has called forth an answer from one who is, in this country at least, the best qualified to undertake the task. Mr. Mayr is a chemist and physicist of some reputation in his own land, but he is careful to tell us that his practical experience of Dentistry is very limited; Mr. Fletcher, on the other hand, besides being an accomplished chemist, has the further advantage of being a practical Dentist of no mean skill; it is not to be wondered at, then, that he has little difficulty in disposing of some of Mr. Mayr's rather surprising statements.

But it is not with these that we wish to concern ourselves just now; we wish rather to consider in what spirit suggestions from an outsider should be received. It seems to us that this should depend entirely on the spirit in which they are made. When a man puts himself forward and dogmatizes blindly on a subject about which he knows little or nothing, he deserves to be put down or, as it is generally termed, snubbed. But if, as in this case, the speaker states honestly, I don't know anything about Dentistry, but I do know something of chemistry, and I will tell you how my knowledge leads me to view some of your processes which are governed by the laws of chemistry, we think that that man deserves different treatment, and from this point of view we think Mr. Fletcher is rather too severe on his opponent.

We would especially dissent from Mr. Fletcher's opinion that such a paper as this is likely to do more harm than

good. In our opinion nothing is more improving than the criticisms of an educated layman. We are all far too prone to adopt practices empirically and without properly thinking out and weighing the steps by which we have arrived at a given conclusion. Few can boast of the combination of theoretical with practical knowledge which Mr. Fletcher himself possesses, and it needs some such stimulus as our chemical friend supplies to rouse us to give an account of the faith that is in us.

We take this opportunity of calling attention to another outside suggestion, which will be found at p. 541, on the subject of "Hæmorrhage after Extraction." This is a matter to which, we believe, a good many practitioners pay too little attention. It is true that cases of serious hæmorrhage after extraction are rare, but cases are by no means uncommon in which the bleeding continues sufficiently long to be a source of considerable annoyance to the patient, and, in the case of anæmic and weakly subjects, to cause some amount of faintness. We have not unfrequently been called upon, often late in the evening, to treat the patients of other practitioners on account of this troublesome complication. Instead, then, of treating with ridicule, as is often done, any reference to the probability of hæmorrhage, it would be wiser to admit the possibility, and to encourage the patient to return if the bleeding should not cease within a reasonable time.

As to the note which the editor of the 'Lancet' has thought proper to append to Dr. Prickett's letter, we know not how to characterise it without making use of unparliamentary language. The sentence which we have placed in *italics* shows either the most reckless disregard for truth or an amount of ignorance which, in the editor of a journal of the 'Lancet's' pretensions, is almost equally culpable. We leave our readers to decide which of these explanations is the most probable.

Literary Notices and Selections.

ON THE TRANSPLANTATION OF TEETH.

By Dr. TH. DAVID.

(From the 'Gazette Odontologique.')

(Continued from page 430.)

BEFORE proceeding to the operation there are a few preliminaries which must be attended to ; due precautions must be taken to avoid the transmission of any infectious disease, and some retaining apparatus must be devised and prepared. With regard to the latter, the plan which has in our hands afforded the most satisfactory results is that which will be described in Case 1.

The operation itself may be divided into three stages.

1. That of extraction, which should be effected with forceps, and care should be taken to damage as little as possible the healthy tooth as well as the gum and the margins of the alveolus into which it is to be transplanted.

2. One may, without endangering the success of the operation, resect if necessary either the extremity of the root, or the crown of the tooth to be transplanted. The latter may be necessary in cases where the shape of the crown does not accommodate itself to the gap to be filled, or where it does not articulate properly with its opponents. Any carious cavities may be filled at the same time, the tooth being kept meanwhile slightly moist and as cool as possible. Any bleeding must be arrested either with cold water or with very dilute alcohol.

3. The adjustment of the tooth in its new position. This may present some difficulties when the size of the root exceeds that of the alveolus into which it has to be fitted. A resection of the root then becomes necessary, and either a portion must be taken off the extremity so as to diminish its length, or off one of its sides so as to diminish its thickness. That this latter operation is not an obstacle to success is proved by a case of replantation recorded by Bourdet ; and, although the root will not become united to the alveolus throughout its whole circumference, it acquires a quite sufficient amount of firmness. In the case of a slight excess of bulk the simplest way is to push the tooth forcibly into the

alveolus and fix it there ; it need hardly be said that this is an exceedingly painful operation.

The tooth having now been placed in its new position, the next thing is to fix it there as immovably as possible. In cases of transplantation there is not, of course, the same perfect coaptation between the tooth and its socket which there is in cases of replantation, and it is only by fixing the tooth securely that this unfavorable feature of the operation can be obviated.

A few other points, connected with the neighbouring structures rather than the tooth itself, may be noticed. When the tooth which has been removed is the subject of periostitis, the alveolus is of course also affected. In these cases suppuration almost always occurs, and it is necessary to give it vent by making or keeping open a free alveolar fistula, by drilling, setons, injections, &c. Attention to this is of the greatest importance, as the omission of these precautions would lead to accumulation of pus in the alveolus and the operation would probably be a failure. Indeed, under these circumstances, the importance of a thoroughly patent fistula is so great that if one does not already exist it must be made. We have found that slight cauterisation of the free edge of the gum, which sometimes becomes a little swollen and inflamed all round the transplanted tooth, promotes consolidation ; nitrate of silver may be used for this purpose, but chromic acid is better.

The results of the operation are various. If the two surfaces thus brought into apposition are healthy, they will unite by first intention and become firm in two or three days without any inflammatory or painful reaction. When the alveolus is diseased consolidation takes place much more slowly, and then all the precautions of which we have just spoken are required. In such cases it is not unusual to get a pretty sharp local inflammatory reaction, accompanied by more or less pain, and sometimes even by some constitutional disturbance. At the end of four, five, or six days the inflammation and pain disappear, and the tooth gradually becomes firm, but there is always a probability that the fistula may never quite heal.

In the absence, then, of any affection of the alveolus or other complication consolidation is complete in three or four days ; but if anything of this sort occurs it may be ten or twelve days or more before the tooth becomes quite firm. The treatment of these complications when they occur is of course troublesome, but the cure may be greatly assisted by attention to the special precautions which we have mentioned. In such cases recovery is often incomplete, a very small

fistula being left, from which a slight oozing of muco-purulent matter, without any offensive characters, takes place, as in Case 4.

The cure when complete is permanent; at all events there is no reason why a tooth which has been successfully grafted should not last as long as one which has never been extracted.

Failure is due to the occurrence of acute intra-alveolar suppuration, followed by the falling out of the tooth. Generally this is decided about the third or fourth day, but when the tooth has contracted a few partial adhesions it may be delayed.

The results ought not to be less favorable than those which follow replantation. In my own practice 95 per cent. of these cases have been successful, and in that of Dr. Magitôt 92 per cent. For if the operation of transplantation is less favorable as regards the perfect coaptation of the tooth and alveolus, yet, on the other hand, the tooth which is replanted is free from any disease of the root. The number of operations of this sort which have been performed is not yet large enough to afford reliable statistics; still, a large number of successful cases have been reported by various authors. For myself, I have performed the operation five times, and in each case successfully. In four cases the tooth which was removed was a right upper lateral, and this was replaced in two cases by a lower canine, once by a lower lateral, and once by an upper lateral. In the fifth case an upper bicuspid was replaced by a tooth of the same kind.

CASE 1.—Mdlle. C—, aged seventeen, has two upper laterals deeply decayed so as to be in strong contrast to their neighbours which are perfect. She would like to have them replaced, but not with “false teeth.” It would be in vain to search for two similar laterals to graft in their place, but Miss C—’s brother has the lower left canine placed irregularly outside the line of the other teeth. This tooth is small and but slightly convex, so that if its point was cut off it would easily pass for an incisor. The sacrifice of this tooth is offered to us, and furnishes us with one substitute.

We find the second, under almost the same conditions, in the mouth of a young collegian of fifteen years, whose lower jaw is too small to hold the two canines.

Previous to the operation I constructed a retaining apparatus thus:—A metal plate was carefully fitted over the anterior part of the arch of the palate and to the posterior aspect of the incisors; the margin of this was turned over anteriorly so

as to form a groove in which the free edge of the teeth were inserted; hooks on each side served to fix it firmly to the molars. This apparatus, which allowed almost complete occlusion of the mouth, kept the front teeth, or any others which might be put in their place, perfectly fixed.

December 6th, 1878.—Extracted the two lower canines of the young collegian and the left lower canine of the brother, all three being perfectly sound. I next extracted Mdlle. C—'s decayed incisors; the roots were found to be of good size and quite healthy. The dimensions of the brother's tooth were almost the same as those of the incisor except a slight excess of length, which was corrected by cutting off three or four millimètres from the apex of the root.

I took the left canine of the young collegian in preference to the right because it was flatter; the root, which was not quite fully formed, was not too long, but I cut off the point as I had that of the other, and also removed a tubercle from the posterior aspect of the crown. I then satisfied myself that the two teeth thus prepared would fit properly in the splint in the position which they ought to occupy.

Having then carefully cleaned the alveoli, I placed the teeth in position, that of the collegian on the left, the other on the right. The first went in easily, the fang being slightly shorter than that of the tooth which had been extracted; that of the brother I was obliged to push in with some force, causing a good deal of pain. The splint was at once put on; it pressed rather severely on the right hand tooth, again causing pain. I fixed the jaws with a bandage and ordered a liquid diet.

The pain continued, on the right side only, all the evening; the patient was restless and did not get to sleep till late in the night after having taken an opiate draught.

Next day I found her free from pain; she had taken off the bandage, and could even eat with the splint on, without unduly pressing on the replanted teeth. Around these latter the gums were somewhat injected.

On the 10th I took off the splint, both the teeth being pretty firm, the left most so.

12th.—Consolidation appeared to be almost perfect. A month later the two teeth were found to be quite firm and undistinguishable in colour from the rest; this leads me to hope that the pulp, all the conditions being favorable, has re-established its vascular and nervous connections.

CASE 2.—Mons. D—, a medical student, aged twenty-one. His upper left second bicuspid had been carious for a long time, half the crown having disappeared; moreover, during the last two years it had given rise to a succession of small

gumboils. I offered to extract it and to replace it by a sound tooth which the following circumstances rendered available.

A schoolboy, aged fourteen, came to me with a very crowded upper jaw ; his teeth were very irregular, especially on the left side, where the canine was descending quite outside the line of the arch. To make room for this I decided to extract the first bicuspid. Accordingly, on March 4th, 1878, I extracted the two teeth. The root of the carious tooth gave plain evidence of chronic periostitis, the apex being rough and bare, and on probing a fistula in the gum I found that it led into the bottom of the empty alveolus. The healthy tooth was found to be a good deal too long, and when this had been corrected by cutting off a piece of the root, I found that the crown was also too big and that it would not go into its new place. The extractions had taken place at the boy's college and it was not till we got home, about an hour and a half later, that I was able to grind down one of the faces of the crown so as to render it possible to implant it. This operation gave only momentary pain, and the tooth kept its place without any retaining apparatus, being well supported by its neighbours and by the pressure of its antagonists.

Next day there was a slight inflammatory reaction about the gums, and a little sero-purulent discharge through the fistula, but the tooth was in good position and there was little or no pain.

By the sixth day after the operation all inflammation had subsided and the tooth was quite firm. The fistula did not close till a month later, and since that time it has opened again three times, remaining open for a day or two. A year after the operation the tooth was firm and useful ; there was, however, a slight difference in colour, due no doubt to the death of the pulp.

(To be concluded.)

THE TEETH DETERIORATED BY DISEASE.

WHEN a patient has recovered from any prolonged and exhaustive disease, such as typhoid fever, he usually devotes a goodly portion of his time to telling how fearfully the strong medicines have affected his teeth. He often finds his gums soft, spongy, and inclined to bleed from the slightest touch. And it often happens that his mouth

never regains its normal condition, and he goes through life regarding himself as a melancholy monument of the disastrous results of strong medicines.

In the meantime a member of his family is attacked by the same, or a disease similar to his own, and he resolves that there shall not be a second mouth-martyr in his family; and so he calls in a genuine Indian Root Doctor, who doses the victim with copious draughts of disgusting decoctions, till the disease is either rooted out, or exhausts itself. And then he finds the mouth and teeth in the same deplorable condition that had previously occurred after the "strong medicines."

In the course of time another member of this unfortunate family is stricken, and almost regardless of the general constitution, in the awakened zeal for the welfare of the mouth, a man is called in to administer *nothing*, done up in sweet little pellets of sugar of milk. Faith, hope and *time* at length result in convalescence; and with all the expectant enthusiasm of hope ripened by previous disappointments, the mouth is examined, only to find the disgusting demon of disease and decay affecting the gums and teeth. And, now, faith in medicine is shaken—shaken, too, in its stronghold, in a mind that had hitherto believed in all the infallible cures for incurable diseases, recommended by too credulous ministers of the gospel in the religious newspapers.

And, though the now bewildered man had been always prompt to call medical aid for colds, colics, and sore toes, he totally neglects this condition of the mouth, fully believing, to all appearance, that it is incurable—that, as it has been brought about by medication, medicines, instead of curing, would only aggravate it. The decays in the teeth are left unfilled, and these invaluable organs rot away and are lost, the overloaded vessels of the gums go unrelieved, the breath becomes fetid, the entire mouth inflames, the throat becomes an open sepulchre, the stomach groans under the loads of poison sent to it with the food, the bronchial tubes and air cells take on disease from the poisoned atmosphere carried to them in respiration, and finally the patient can be complimented only as a walking hospital, or a lively corpse. It may be readily inferred that he is dead, for, "by this time he stinketh." The picture is not overdrawn. Words fail. They are meant to describe all possible ideas and objects—but, nay! verily, they totally fail here.

Now, there is something wrong in all this; and wherein does it lie? To detect the wrong is always the first step toward the right. When a small boy the writer of this was

lost in the darkness, having taken the wrong road. After having discovered the mistake he kept on, hoping to find a by-way that would lead to the right road. A cheerful light from a farm house smiled on him and he called for information. The kind old farmer, in the most fatherly manner, offered him the hospitalities of his house, which had to be declined. Then he told him that the only way was to go back to the forks of the roads, and take the right one. He had left but a few minutes, when the farmer called after him, saying. "My son! if, in the journey of life, you make a mistake like this, follow these same directions." No better advice can be given to the young Dentist or physician; and it is not bad counsel to any one. So, in the case of the mouth-martyr described; his inference is wrong, and should be promptly abandoned, and the correct one adopted.

In describing this unfortunate victim, it is not understood that he stands alone, or is even lonely in his belief. As an aged, experienced physician, the writer can testify to the almost universality of this belief. In view of the very slight foundation it has to rest on, its wide diffusion is remarkable. It is true that some medicines injure the teeth by chemical corrosion. These are found among the concentrated acids often administered as tonics. Elixir vitriol and tincture of iron belong to this class, sulphuric acid being the active principle of the former, and hydrochloric, sometimes called muriatic acid, the corrosive agent of the latter. All such agents do their mischief by abrading the enamel, or the dentine, if exposed, thus leaving roughened surfaces favorable to the lodgment of particles of food, and other matters liable to fermentation or decay; and as some of the special acids, which directly cause decay, may result from such fermentation, these medicinal agents may be classed with the predisposing causes of Dental caries, though nothing can be more absurd than the claim that these acids, administered as medicine, now and then, can *directly* cause caries of the teeth.

Much can and should be done when these corrosive medicines are used, to guard against their deleterious effects on the teeth. Some suggest their administration through glass tubes, to prevent their contact with the teeth; but the device is not very efficient. But few can swallow a liquid without letting it touch the teeth. The immediate use of an alkaline carbonate, in solution or substance, is more reliable. Prepared chalk, which is carbonate of lime, may be applied to the teeth immediately with a tooth brush, or rubbed on them with the finger, if the patient is a child; or carbonate of

magnesia, soda or potash will answer as well. The soda and potash carbonates, being highly soluble in water, may be found more convenient in practice. Let the solution of the one or the other be freely applied with a soft brush immediately after the administration of the acid.

But let it be understood, all the time, by physician, Dentist, patient, and all concerned, that the morbid state of the mouth is caused by disease, rather than by the medicines used in combating it. With this thus fully understood, both physician and Dentist are ready to act for the cure of the mouth, with full hearty co-operation of the patient.

A few words in regard to the production of this condition by the disease may be profitable. It is well known that throughout life every tissue of the body is undergoing disintegration. The teeth are not exceptions to the rule. The changes they experience are similar to those in other bony tissues, being probably slower in their progress, on account of the greater density of the teeth. Atoms, molecules, corpuscles, or what not, fulfil their functions, perform their offices, discharge their duties, die, and are dissolved and carried out of the system by the emunctories, thus making room for new material, full of life and function, to take their places, to perform like duties in their turn, and afterward to pass away after the example of their predecessors. When this waste and repair are exactly balanced, the constitution is maintained. When the waste is greater than the repair the system declines. The repair is kept up by the process of nutrition. Disease weakens or destroys the various functions concerned in this process. When a function is destroyed, of course the constitution is thrown off its balance. The same is true, to a less extent, when a function is only impaired; and, besides, the impaired function is able to form only abnormal or depraved tissue. In a prolonged attack of illness, then, there may be both the conditions above described. Tissues fail to be nourished because function is impaired or destroyed; and the additional tissue which has been furnished is found to be defective in character and material. It is probable, therefore, that all experienced Dentists, who are close observers, find the teeth of patients, who have recently suffered from prolonged, wasting disease, brittle, chalky, dull in colour, easily cut, readily broken, deficient in organic matter, with a lack of lime salts as well—in short, the teeth have been sick, and are, as yet, barely convalescent. At the same time, the mucous membrane of the mouth is found engorged, congested, irritable, if not inflamed; while the gums are swollen and spongy, their margins inclined to separate from the necks of the teeth, the

festoons sometimes dense and smooth, all points on the membrane ready to bleed from even slight wounds. And this state of the mouth, by the popular mind, is charged, in full, to the medicines used, and therefore, as already mentioned, medical treatment is ignored or rejected, in the full belief that a resort to it would only increase the difficulty. As the necks of the teeth are sensitive to thermal changes, the mouth is not washed; and as the gums readily bleed, the toothbrush is rejected as if an instrument of perdition. The beautiful gems, intended to furnish life with its smiles, are thus left to rot in the fetid filth which surrounds them.

The stomach wails from overwork, and finally fails to digest the befouled, unmasticated food forced into it, and nutrition fails. Disintegration predominates, dead matter accumulates in the circulation, there to putrefy and be given off as excretions through organs which should be, and in health always are, organs of secretion. A disastrous compound resulting from this putrefaction is ammonia, which, when eliminated by the salivary glands, or membranes of the mouth, takes the carbonic acid from the buccal fluids, and thus causes the precipitation of the lime salts from the saliva, in the shape of tartar or salivary calculus. If neglected, this soon results in destruction of the sockets, and loosening and loss of the teeth; more teeth being lost in this way than in all others. This terrible condition, resulting from the presence of ammonia in the fluids of the mouth, was probably first clearly described by Dr. George Watt in various meetings of Dental societies; and it was made the subject of a brief paper read by him before the Ohio State Society a year or two ago. It is said that only the failure of his health prevented its being laid before the profession, in a monograph, years ago.

A question naturally arises here, as to which of the varieties of dental caries is to be found in the teeth, in consequence of protracted illness, such as has been under consideration. This depends on a variety of circumstances, such as the nature of the disease, its severity, the temperament of the patient, &c. As the disease progresses, the attending physician can, if he understands the nature and causes of the several varieties of dental caries, give a reasonably correct prognosis as to which, if any, variety shall follow. Patients of bilious temperament, who ordinarily suffer from constipation, will often, during protracted illness, give off with the breath, and also by the skin, an abundance of sulphureted hydrogen. Such a patient will be almost sure to have black decay, if any. The writer has seen such patients with black decay on all the approximate surfaces of

the upper front teeth, all recent, having begun during or immediately after attacks of typhoid disease.

But if, during the progress of the attack, the physician finds the breath and the perspiration ammoniacal, he should warn the Dentist against the prospective ravages of white decay, the most deadly of all. As to white decay resulting from the presence of ammonia, consult 'Watts' Chemical Essays,' or an extract from the same in appendix to 'Taft's Operative Dentistry.'

But if the attending physician detects neither ammonia nor sulphureted hydrogen in the patient's breath, it may be taken for granted that if caries result from the disease under treatment it will be of the most common variety, that which is caused by hydrochloric acid, and in which most of the organic portion of the dentine remains in the cavity of decay. This form of caries is apt to accompany or follow our autumnal fevers, dysentery, &c.

It is scarcely necessary to notice, in this connection, that after chronic gouty or rheumatic attacks, that form known as chemical abrasion usually predominates. This abrasion, in such cases, is caused by lactic acid. In young patients, where starchy substances are allowed to accumulate about the necks of the teeth, a similar abrasion is caused by acetic acid. The peculiar trait of this variety is in the fact that the organic and inorganic substances of the tooth are dissolved with equal facility.

The preceding remarks lead to a practical question of great importance, and, after an attempt to answer it, this paper must close.

What, if anything, can be done, during and immediately after the attack of disease, to ward off or mitigate these deleterious results to the teeth and mouth?

No one can fail to see that in disease of the general system the Dental organs must bear their proportion of the shock. "If one member suffer, all the members suffer with it." When the body is sick the teeth are not well. Not only are they enfeebled, as to their resisting powers, but the general disease of the system causes them to be surrounded by vitiated secretions, and other substances tending toward their injury. They have, thus, a two-fold source of danger.

Treatment during the attack of disease is to be mainly preventive. The most scrupulous cleanliness of the mouth should be enforced. When the patient is not able to cleanse his mouth with a soft brush the nurse should do it for him. After washing, the mouth may be rinsed with a diluted solution of common salt. "Salt is good." It arrests putrefaction of the mucus and other nitrogenous substances

found in the mouth. The mouth should be frequently washed; but it is especially important to attend to it morning and evening.

When the breath is ammoniacal the mouth may be washed with diluted organic acids—vinegar, or lemon juice, diluted; and, if not contraindicated, reasonable quantities of these may be drunk by the patient.

When the breath is loaded with sulphureted hydrogen, the introduction of oxygen into the blood is indicated. For this purpose the chlorate of potash may be used, unless forbidden by some other symptom or circumstance. And in all these conditions the arrest of putrefactive tendencies is indicated. For this, salicylic acid will be found invaluable. Three to six grains a day, divided into three or four doses, will be found efficient.

The treatment, thus far, pre-supposes the co-operation of the physician and Dentist, or the time when physicians shall be more familiar with diseased conditions of the teeth than they now are. But the patient reaches convalescence, and is given over by the physician, with the teeth and mouth as already described. In this deplorable and filthy state he reaches the Dentist;—and now what?

It is taken for granted that the Dentist who is at all capable of doing justice to such a patient is not expecting a series of recipes. On the contrary, after laying down some general principles, and giving some practical suggestions, it is expected that he can do his own thinking. Brains can not be furnished through the medium of the printing press, and if they could they would not, probably, be judiciously used by the recipients.

Should a farmer find a feeble horse in a filthy stall, and feel like affording him a favour, his first thoughts would not turn to oats, bran mash, corn, and condition powders. He would at once have the stable thoroughly cleansed, disinfected, and ventilated. So the Dentist, with good judgment, will remove all offensive foreign matter from the mouth; he will use antiseptics, disinfectants, astringents, and stimulants to the gums and mucous membrane. He will polish the teeth, to restore their functions and to facilitate cleanliness; and all this will he do before proceeding to fill ordinary cavities of decay. Prof. J. Taft, at the late meeting of the Mississippi Valley Association, is reported as saying that this is not the ordinary course pursued by a majority of Dentists. It is very unfortunate if his statement is true; but he has not, probably, made it hastily.

By the local treatment above suggested, in ordinary constitutions, the mouth will be brought to such condition as

to permit filling the teeth. But when this is done, and the teeth are properly filled, has a cure been obtained? Is a fever patient cured by washing him, and carrying his excrements from the sick room? His constitution may have so much natural vigour that, with the aid of the nursing described, he may be able to throw off or wear out the disease without special medication. In like manner, when the tartar is thoroughly scraped from the necks of the teeth, all portions of diseased tissue are removed, and the mouth is afterwards kept scrupulously clean, a strong constitution may be able to do the rest that is needed in affecting a cure. But it is not good practice to run such risk, or to so tax the vital powers. When the secretions of the mouth are normal no tartar can be deposited, as the lime salts, both the phosphate and carbonate, are held in solution by the free carbonic acid dissolved in the buccal fluids. But when the waste of tissue, from general disease or in defective nutrition, becomes so great that the resulting ammonia is not all eliminated by the kidneys and skin, it escapes as an excretion through the salivary glands or mucous follicles, and is thus in solution in the fluids of the mouth. There it finds and combines with the carbonic acid, which being thus removed from these fluids leaves them unable longer to hold the lime salts in solution, and they are, hence, precipitated in the form of tartar.

The fluids of the mouth when charged with ammonia are generally, if not always, tenacious or ropy. This should be regarded as an indication of danger. The patient is not cured while it exists. And right here the internal use of acids, either mineral or organic, is indicated. Five to twenty drops of elixir vitriol, according to the age and vigour of the patient, may be given after each meal. Or acetic acid, in the shape of vinegar or pickles, will answer quite as well. Lemons and acid fruits in general produce favorable results. When the saliva has regained its normal physical properties, and the ammoniacal odour is gone from the breath, the patient may be regarded as cured in this respect, to be dismissed, of course, with the most earnest injunctions as to cleanliness of the mouth in all future time.

If the sulphureted hydrogen breath should prevail, after the local care necessary to the mouth, a course of chlorate of potash is to be recommended. It may be used at the rate of three to six grains after each meal. When rubbed up with four or five times its weight of white sugar it is more pleasant, and it loses none of its efficiency if so combined.

When the tendency is to the hydrochloric acid form of decay, the patient should indulge, but moderately, in the

use of common salt. Indeed, it is quite probable that this salt is much too freely used by a majority of Americans.

Much of this treatment has been already suggested by Dr. George Watt. If a second witness can aid in enforcing the testimony, all well. This paper suggests in its general import one of two things, if not both, viz. either that Dentistry must be a specialty of medicine, or physicians and Dentists must cultivate a closer and more cordial co-operation. The welfare of the human race requires this, and, therefore, in the good time coming it will no doubt be brought to pass.—*Ohio State Journal of Dental Science.*

SOMETHING NEW FOR FILLING THE ROOTS OF DEAD TEETH.

By FRANK L. HARRIS, D.D.S.

ALL who have attempted filling the roots of teeth have experienced more or less difficulty in achieving satisfactory results. The few who boast of perfect operations would be made aware of the mistake they make could they always see how imperfectly their work has been done. By request, I made some fillings of soft gold (Abbey's) and tin combined as an experiment, in 1876, and since that time have used it for the poorer class of my patients.

In using gold and tin as a material for filling the roots of teeth, you have every advantage of the gold, as it is folded on the outside of the tin, while the tin stiffens the strip so that it can be carried nearly, or quite, to the apex of the root. I use the strip very loose, and roll or twist in the fingers to as near the shape and size of the canal of the root as possible, then carry it up with a fine canal plugger, and finish with a heavier instrument.

We shall all agree that the successful filling of roots is one of the hardest tasks the Dentist has to do, owing in many cases to the crooked conditions and the impossibility of seeing into the root. In conversation with a Dentist of ability, I asked him his treatment of dead teeth, or what he used to fill the roots with. He said, "Gold." I asked him if he was successful, and, like an honest man, he replied: "Doctor, I have many failures; and I believe the men who claim they can fill all roots successfully do not know of the many failures they make." I do not claim that gold and tin will always succeed perfectly, but they will do more than any other material I have ever been taught to use.

As Dentists and as a profession we want more of fellow-feeling. I hope to see the day when Dentists will freely consult together as brethren, and talk less of the imperfect operations of those who are doing all they can. This unhappy criticism ought to cease and be buried in the past. We want, and ought to be, a liberal profession in the broadest sense of the word. Then the younger and less experienced members could go to the well-informed and get knowledge without fear of being proclaimed and pronounced ignoramuses. I know of men, who ought to be leaders in our calling, who make it a point to speak ill of every man, even under difficult conditions. To my brethren I say, let us quit finding fault and picking with our excavators for flaws in the work of other Dentists, and look well for the many defects in our own efforts. Then the world will believe what we would have them believe—that we not only try to fill teeth, but also try to fill our calling in life.—*Johnston's Dental Miscellany.*

MEDICO-DENTAL JURISPRUDENCE.

A paper read before the Ohio State Dental Society.

By J. H. WARNER, D.D.S., Columbus, O.

IN the field of medical jurisprudence the Dental profession must, from the necessities arising from natural causes and the complicated forms of our modern civilization, take and maintain a most important position. Shipwreck on the seas and accidents of various characters on land, are all too frequently sending their victims to untimely graves, while crime, with its bloody hand, adds all too frequently to their numbers. In a very large per centage of these cases of untimely death, the sure and certain identification of the remains, and thereby the positive proof of the death of the party in question becomes a matter of paramount importance. In cases of questionable post-mortem identity, there arises at once the occasion and the necessity for proofs which are incontrovertible. On the solution of this question hang the hopes and fears, the joys and sorrows of many a loving heart. On its solution, also, hang the decrees of courts, the entailment of estates, the payment of life insurance, and, in case of crime, perhaps the life and liberty of a supposed criminal. So quickly, in many instances, does the work or causes of death entirely destroy all ordinary means of

identification of the subject, that a necessity has arisen for another—a newer and better method than which has yet come into general adoption. And in cases of natural death, circumstances not infrequently arise that render identification a matter of much importance, but render its accomplishment at the same time extremely difficult. The height of the person, the colour of the eyes and hair, and the age, all at best but approximate evidence in any case, and after the lapse of time, when the soft tissues become destroyed, they are all of no certain and positive value as a means of identification. Fortunately it so happens that at this point the testimony of the Dentist, in many instances, may be of the most convincing character. His work has been among the most enduring structures of the human frame, and when all else has perished the teeth stand as enduring evidence of identification, provided the Dentist, as in moral duty bound, has kept a record of his work. The number of operations and their exact location, form a combination of proof whose stronghold increases in geometrical proportion to their number. Teeth filled, extracted, or inserted artificially, speak with an eloquence that must carry absolute conviction to the mind of the Dentist whose operations have been made the subject of daily record. The number of changes that may be wrought in a set of thirty-two teeth is so great that figures stand aghast at its expression, though a simple mathematical calculation suffices to solve the problem. The number of combinations that may be wrought upon sixteen figures, which equals the number of teeth on either jaw, is 407,080,132, 669,600, and there are just two chances in the above number that any two operations upon a full denture of sixteen teeth will be exactly alike. Having given, then, the exact diagram of the Dental operations upon, and the exact condition of any sixteen teeth, there is just one chance in the above number that any other mouth in the world can be found to exactly correspond with it in every particular. This can be simply illustrated by dice, each of which has six sides. With one dice any given number will be thrown, on an average, every 6th time; with two dice, every 12th time; with three dice, every 36th time; with four dice, every 144th time; with five dice, every 720th time, and with six dice, every 4,320 time, and so on, the difficulty increasing in geometrical progression with the increasing number involved. From the foregoing propositions, it is clear that in any case of post-mortem identification the production of a Dentist's book and exact correspondence of the diagram registered there, with the denture of the body in question, would be such positive proof as could not possibly be ignored by any intelligent court.

It is like producing the key to a combination lock—the one who can produce it would certainly be adjudged the owner of the lock and all it secures. I recite a few cases to illustrate the foregoing propositions.

In western Michigan eight years ago, a banker was murdered and his bank robbed the same night. Some weeks after a body was found on the shore of Lake Michigan, but in so swollen and distorted a condition that the authorities differed as to the identity of the body. In the meantime the banker's partner was arrested and in jail awaiting trial for the murder. His counsel ingeniously advanced the theory that there had been no murder at all—that the man supposed to be murdered had robbed his own bank and fled the country. Under these circumstances the identification of the remains became a matter of grave importance, and the Dentist of the missing man was called to identify the body. He testified to having filled a certain tooth with gold for the supposed murdered man which corresponded with the same tooth which was also filled with gold in the mouth of the found body. But the Dentist had kept no record of the case and had to trust entirely to his memory, and adroit counsel succeeded in throwing such a glamour of doubt about his testimony that the jury were constrained to pronounce the identity of the body not proven, and it never was proved, mainly because the Dentist failed to keep a record of his operations. All will remember the celebrated Parkman-Webster case, in which the identity of the body was proven because among the calcined bones the venerable Dentist, Dr. Keep, of Boston, was able to identify the teeth and a gold plate which he had made for the murdered professor of Boston College. Years ago, in a Michigan town, in which I resided, a young man aged twenty years had his life insured in an "Accident Life Insurance Company" for \$10,000. Shortly after he was reported drowned by the upsetting of a skiff on the St. Clair River. A month after a body was found upon the shore corresponding well with the height and size of the insured party, but the soft tissues were in such an advanced state of decomposition that the parties who knew the missing man well could only testify that they believed the body was his, and the body was buried on the shore where it was found. I had a few weeks previously operated for the young man and could have sworn positively whether the body was of the insured party had I been called upon to do so, and on this question the result of the suit for payment would have mainly hinged. The insurance company, however, had its suspicions aroused, and while the claimants were clamouring

for their money the supposed dead man was unearthed in the far west by a detective, and the swindle was exposed. The young man, after the alleged upsetting of the skiff, had swam to a passing vessel, been picked up and taken to Chicago, and then gone west to grow up with the country, leaving his bereaved parents to collect the insurance policy and follow after. In this case the identity of the body found could have been disproved conclusively by an examination of the teeth after all other means had failed; but crime, which is ever blind, had overlooked this fatal defect in the chain of evidence on which they relied to establish their proof of the death of the insured party.

When the fair young Prince Napoleon IV fell beneath the weapons of barbarians in Zululand, the succession of a throne depended to some extent upon the identification of the remains, and this was established beyond a doubt by his Dentist, who had inserted several gold fillings in the front teeth of the gallant but unfortunate successor to the throne and fortunes of the imperial Bonapartes.

The foregoing are but a few of the cases which might be cited, but they are freighted with the weight of usual lessons whose moral is so obvious as not to need elaboration.—*Transactions of the Ohio State Dental Society.*

EXTRACTION OF TEETH FOLLOWED BY INSANITY.

By Dr. EDWARD H. BOWNE, Rocky Hill, N. J.

ON the morning of April 20th, 1880, I was consulted by Frank McVey, aged twenty-three years, in reference to the extraction of the roots of the superior six-year- and twelve-year-old molars, and second bicuspid. The patient, a well-nourished young man, was suffering from ordinary chronic compound alveolar abscess (from more than one root) with opening into the antrum of Highmore. We advised the extraction of all the roots.

In a large Dental practice of more than eleven years, I never saw before a patient exhibit more terror at teeth extraction; and before operating prescribed, in two doses, three ounces of good apple brandy. The liquor appeared to allay the excessive nervousness and fear of the patient, and in a few minutes I proceeded to operate, and extracted without trouble the roots of the above-mentioned teeth, three of which (roots) were connected with encysted abscesses. I thoroughly syringed the antrum of Highmore with a one to

twenty solution of carbolic acid, and ordered this to be continued for five days.

The patient was not particularly affected by the liquor, nor did he appear to have received a nervous shock, but worked the rest of the day on the Bound Brook Railroad.

The *next* day, however, cerebral disorder was manifested, the young man acted strangely, had an anxious, careworn look, was very dull, complained rather incoherently of pain in the head, and objected to go to work.

The family physician, Dr. Tompkins, of Harlingen, N. J., was called in and diagnosed *congestion* of the brain, and prescribed appropriate remedies. After one month's treatment the patient was no better, the wounds in the gum were healed in the usual time; no discharge whatever from antrum of Highmore after the third day.

December 20th, 1880.—Eight months have elapsed since the teeth were extracted. I was informed to-day by a brother of the unfortunate young man that he is no better, and his parents have determined to remove him to the Trenton Asylum.

Insanity in this case presents itself as imbecility. A most important point in the etiology of this case is the sensitive temperament of the unfortunate youth, no other hypochondriac or *functional* neurosis.

There is no mania or dementia, hysteria or epilepsy, no threatening menaces or atonic agitation. The entire symptomology is summed up in the one expression, imbecility. I have examined the heredity of the entire family, but found no evidence of insanity in a record of many years.

Remarks.—The father of the young man (a well-to-do farmer) is a moderate drinker, the mother is hysterical and suffering, with nearly every member of the family, from post-nasal catarrh of a very offensive character.

After many engagements and much trouble I succeeded in extracting the mother's upper teeth, which were in a state of complete disintegration, and since the insanity of the son, have extracted the teeth of the oldest daughter, in which case ether was administered by Dr. Abraham Moses, of Griggstown, N. J., and sixteen worthless teeth extracted at one sitting, no pain during the operation, or bad after effects. Both mother and daughter are wearing artificial teeth with comfort.

Query.—Does the extraction of the teeth bear on the case, or is the *constitutional* disease of the family, post-nasal catarrh, a factor in the cause?—*Dental Luminary*.

RECOVERY FROM APPARENT DEATH UNDER CHLOROFORM.

THE following extract from a case recorded in the 'Lancet' of May 14th conveys two useful lessons. First, the danger of attempting to administer chloroform and to perform an operation, however simple, without a qualified assistant; and, secondly, the value of presence of mind and of perseverance in the application of restorative treatment. It will be seen that eight minutes elapsed before distinct signs of returning animation showed themselves.

In this case I had no misgivings; the man had taken chloroform already four times, requiring an unusually large quantity to produce anæsthesia, and recovering from its influence very rapidly. Besides, my experiences of the exhibition of the drug could be counted by the thousands, extending back to the days of the Crimea, and hitherto without a shadow of mishap. This time he took the anæsthetic better than ever, less than two and a half drachms proving sufficient. The same procedure as before was gone through. Rolled over on to his stomach, with a pillow beneath it to throw up the back, the head nurse, a most careful, trustworthy person, took charge of the face to keep the mouth disengaged from the bolster, while I applied the iron, assisted by two or three other patients. A piece of oiled lint was then laid on the spot, and J. M.—placed on his back, his pulse and breathing being then both good. I turned from the bed and walked to the stove, a distance of about fifteen feet, to put down the iron, when a cry from the nurse brought me quickly back. Respiration and heart action had ceased suddenly and completely. Having first ascertained that the mouth and rima glottidis were free from mucus, the head was allowed to hang down over the edge of the bed for a few seconds; then lifting the body on to the floor, a needle and thread snatched from a bystander were passed through the tongue, which the nurse held forward, while artificial respiration was vigorously carried on by compressing the chest walls; at the same time cold water was plentifully thrown on the body and ammonia applied to the nostrils. At the end of six minutes, when all seemed unavailing, I stopped for a moment to look at the patient. There was something in his blue appearance that impressed me with the idea that actual death had not yet occurred, and putting my ear to the heart I fancied a sound like a

distant thrill or murmur could be detected. Artificial respiration was resumed, and in a few seconds more the heart's action was very distinct, but there was no attempt at breathing. Hard slaps, cold water dashed on face and chest, blowing violently down the fauces, were all tried in vain. It was singular to note the apparently dead body show its perception of injury by slightly moving the hand in the direction of the part struck. After the lapse of eight minutes a long and deep inspiration took place, then at an interval of eight or ten seconds another, and then others more frequently.

The galvanic battery having refused to act the day before, it was presumed to be out of order, and had not been brought into the ward; but a thoughtful patient, ignorant of this, had fetched it, and, having by this time fixed the wires, put one pole into my hand, which I placed on the epigastrium, directing him to apply the other to the nape of the neck. This he did so rapidly, before I had time to alter the regulator, that the whole current from fifty cells was transmitted, the machine happening to resume its proper action. J. M.—sprang up into a semi-sitting posture, and exclaimed, “Oh, dear! what are you doing of?” He was got back into bed just as the Local Government Board inspector, who was making his official visit, entered the ward. The time that elapsed from the moment of apparent death to his speaking was just ten minutes.

THE PHYSIOLOGY OF ANÆSTHETICS.

DR. BARTHLOW, in the ‘Cartwright Lectures on the Physiological Antagonism between Medicines and between Remedies and Diseases,’ points out that several elements enter into the composition of the sensation which we call *pain*—the peripheral irritation, the transmission of the impression to the centre, and its realisation by consciousness. Hence, pain may be relieved either by interrupting its transmission to the centres of conscious impressions, or by suspending the functions of these centres. For example, aconite and gelsemium relieve pain in the former manner, and anæsthetics in the latter. The anæsthetics, when applied locally, have, however, an effect similar to that of aconite, and are therefore antagonistic to both peripheral and centric neuralgia. When a few minims of chloroform are injected into the neighbourhood of a nerve trunk, the peripheral expansion of the nerve is put into an anæsthetic and analgesic condition; and since Dr. Bartholow brought forward this method of

treating sciatica, cervico-brachial and intercostal neuralgia, coccydynia, and other neuralgiæ of nerves in accessible situations, his experience with it has been extremely satisfactory. The needle must be inserted deeply, since merely to inject chloroform under the skin, like morphia, is perfectly useless in such neuralgiæ unless the nerve-trunk is in the immediate vicinity. No danger attends this expedient, and inflammatory indurations and abscesses rarely result from it. The most powerful means for the relief of pain which is now in our possession—the subcutaneous injection of morphia and atropia together—is an illustration of the advantages derived from the study of physiological antagonism. By this combination the anodyne qualities of the two agents are enhanced rather than diminished, whilst the disadvantages of each are in a great measure obviated. The combined use of morphia and atropia is also, as has been shown, the best preventive of the tendency of anæsthetics like chloroform and ether to produce fatal paralysis of the heart or lungs; whilst the prescription of atropia simultaneously with chloral to a great extent averts the dangers that sometimes attend the use of that agent.—*Practitioner, from New York Med. Record.*

BLEEDING AFTER TOOTH EXTRACTION.

SIR,—I think the attention of Dentists should be drawn to the many and serious cases of hæmorrhage that occur after the extraction of teeth.

During the last year my partner and I have been sent for to attend no less than six cases of this sort, in which nothing short of plugging the cavity sufficed to stop the bleeding. Such cases are sometimes really formidable, owing to the delay in sending for assistance, either from the impression that the hæmorrhage will soon cease spontaneously, or that some wash supplied by the nearest chemist will suffice.

I would suggest that Dentists should satisfy themselves as to the complete cessation of bleeding in all cases of extraction before dismissing their patients, and should also give implicit directions about sending for professional aid without delay in the event of the recurrence of the hæmorrhage.—I am, Sir, yours faithfully, M. PRICKETT, M.D.

The above letter appeared in the 'Lancet' of May 14th, together with the following editorial comment. *The italics are ours.*—ED. 'B. J. D. S.'

In another column Dr. Prickett draws attention to a subject of considerable interest—namely, the evil occurrence of,

and the consequences resulting from, prolonged bleeding after tooth extraction. *The Dentists Act, having thrown open the practice of Dentistry in all its branches, together with all that can be comprised under that term*, has done much to enlarge the source of danger to which our correspondent refers. Cases have been brought under our notice in which very grave results have supervened on the hæmorrhage from the socket of a tooth which has been "dragged out" of its place by a non-surgical Dentist. The public will do well to be warned of the peril which may ensue if bleeding after tooth-drawing is neglected. Sufferers who have made the mistake of not in the first instance applying to a fully qualified surgeon for the relief of toothache should at least be prompt in securing the services of a competent practitioner when hæmorrhage begins.

A HINT FROM THE DENTAL SURGEON.

At the last meeting of the Royal Society, Dr. MacEwen presented a paper on a case in which he had successfully transplanted bone. The patient was a child, four years of age, who had lost two thirds of the shaft of the humerus by necrosis fifteen months previously, and in whom no osseous repair had occurred. The limb was of course useless. Dr. MacEwen proceeded first to make a groove in the soft tissues in the position of the bone, relying for this on his anatomical knowledge, and then placed in this groove small fragments of wedges of bone removed from other patients for curved tibiæ. The result has been that a good new bone has been formed, the new portion has united firmly to the upper epiphysis and lower part of the original shaft, and the bone is only half an inch shorter than its fellow. Proper care was taken throughout to have the parts perfectly aseptic. Great interest attaches to this case, which is the first of the kind recorded, and Dr. MacEwen is entitled to warm praise for devising and carrying to such a successful issue the many details necessarily involved in its management. Happily Nature is usually so skilful in the repair of lost parts of bones that it is not often the surgeon is called upon to make good the loss; but much as there is to marvel at the way in which Nature thus generally plays her part, cases now and then occur in which she fails to supply the lacking portion. Many interesting problems arise in reviewing the facts of this case. The first is, What was the original condition of the limb? There was evidently a local inability to produce a new bone, and we may presume

that in the primary inflammation the periosteum, or at least the deeper active portion of it around the sequestrum, had been destroyed, and the lymph poured out from the surrounding tissues lacked any "ossific stimulus." This the bone-grafts supplied. But how are we to explain the formation of new bone of the proper length and form? We cannot, of course, attribute this power to the transplanted tissue; it might have seemed probable if Dr. MacEwen had used pieces of the opposite humerus, or even any humerus, for his purpose, but we find that pieces of tibia were successful. If not the transplanted bone, are we to say that the ends of the original bone exerted a moulding influence on the ossifying material, or was it the effect of the surrounding tissues? A question naturally arises whether transplantation of bone is essentially better than transplantation of periosteum alone. It is easy to see that when whole pieces of bone are used, the periosteum over them will be probably more active than when stripped off and used alone, as in stripping off it is liable to injury. It would also be exceedingly interesting to know what actually became of the transplanted bone. Did the medullary cells and soft parts live, and the fragments become actually incorporated with the new bone; or was lymph effused around and into the bone, which was then gradually softened down and absorbed, or cast away in secretion? The problem is the same as has been raised about organising blood-clot. A case published in our columns in 1878 by Dr. MacEwen may be taken as throwing some light on the question; there, in a case of compound fracture of the leg, a fragment two inches and a half long was completely detached, except by a very few slender bridges of periosteum, but being replaced and carefully treated, it was seen after four weeks to become injected with blood, and granulations rose from its surface. Here the whole process was closely watched from day to day, and the large fragment was seen to become firmly incorporated again with the rest of the bone. Other cases, individually perhaps less conclusive, point to the same conclusion; we may refer to one contributed to our columns in 1877 by Mr. Porteous. As so frequently happens in such cases, while Dr. MacEwen has been carrying his case to a successful issue in Glasgow, a similar proceeding had been determined upon by Mr. C. Macnamara of the Westminster Hospital. On Wednesday last we saw him plant several small fragments of bone taken from an amputated metatarsus in a groove prepared in the leg of a little child from whom several months ago he had removed the greater part of the shaft of the tibia. This

operation was determined upon and discussed before the class of students more than a month ago, before Dr. MacEwen's case was made public, but it was postponed until the patient had had a few weeks' change of air in the country. *Mr. Macnamara remarked, in reference to it, that he had been greatly struck with what he had seen in the practice of Mr. Thompson, who has removed teeth and replaced them several hours later, and they have adhered firmly in a few days; this, with other facts, had encouraged him in his endeavour to make a new bone in the case in point.—Lancet.*

REMINISCENCES OF A DENTAL SURGEON.*

THIS is a little book which it is difficult either to praise or to blame. The author states in his preface that he "is actuated by a desire to diminish in some degree the terror which the word Dentist is apt to conjure up in the minds of many persons, especially the young," but we doubt whether it will do much towards this end. It consists of about a dozen slight sketches and anecdotes such as most practitioners are wont to relieve the tedium of the operating chair; they are, however, briefly and pleasantly told, as may be judged from the following extract:

THAT LOOKS MORE LIKE ME.

One day I was consulted by a lady whose age might be about fifty.

Her nasal intonation, not at all disagreeable, intimated without a doubt that her home was across the Atlantic. From her conversation it might be inferred that she was the wife of a sea captain. She was a tall, thin woman, with a pleasing and intelligent face, and a quisisically determined look.

"Doctor," she said, "I've got a set of teeth, I want to know—"

"Well, ma'am, what do you want to know?" I inquired.

"What do you think of them?"

"They appear to be very nice," I said.

"Very nice," she replied. "Yes very nicely made. Now, doctor, did you ever see an old woman of my age with a set of teeth as white as these?"

"Some people like white teeth," was my reply.

"Now did you ever see a woman of my years with as white a set of teeth as these?"

* 'Reminiscences of a Dental Surgeon.' By Joseph Snape, L.D.S., late Dental Surgeon to the Royal Infirmary, Liverpool, and Lecturer on Dental Surgery at the Royal Infirmary School of Medicine. London: Simpkin, Marshall, & Co. 1881.

"Had they been a shade darker," was my reply, "they would no doubt have looked more natural."

"Doctor, have you any darker?"

"Yes."

"Let me see them, then?"

I showed her a set a shade or two darker than those she was wearing, inquiring if she liked them. Placing them between her lips, and examining them closely before the mirror, she exclaimed, "W'aal, that looks more like me," and inquired, "Can you not make me a set like these?"

"Yes," was my reply.

"W'aal, I have heard you well spoken of, so go to work, and take the models."

The models were taken, and in due time the teeth were made. When they were inserted she went up to the glass, and said, "Ah, that's more like me!" and after admiring herself for some time, turned round and said, "Doctor, did you ever see an old woman of my age, who has had to make, mend, and do for five or six children, for a dozen years or more, that didn't nip her teeth by biting thread?"

"I have known many ladies do it," I replied.

"Now, doctor, don't you think that if you were to take a file and give those front teeth two or three nips they would look more natural?"

"It would disfigure the teeth," I said.

"Never mind that," was the reply, "you just nip them."

After some hesitation her request was complied with, when she again turned to the glass, and exclaimed "That's more like me."

I then thought the climax was arrived at, but no! I was mistaken, for again she accosted me with, "Doctor, did you ever see an old woman of my age without any decayed teeth?"

"Some people's teeth never decay," I replied.

"W'aal," she returned, "you never saw an old woman of my age, who had five children, that had not some bad teeth. Now, doctor, don't you think that if you made holes in the two front teeth, and stuffed them with gold, it would make them look more natural?"

"Well," I replied, "were I to do so, the cost would be increased."

"Never mind your charge, it's no use spoiling a ship for a ha'porth of tar."

So the holes were drilled, and the stopping inserted to her complete satisfaction. Taking another look in the glass, she finally remarked with great complacency, "Ah, that looks more like me!"

Dental News and Critical Reports.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

WEDNESDAY, APRIL 20TH, 1881.

THOMAS EDGELOW, L.R.C.P., President, in the Chair.

MR. FRANCIS MASON exhibited two patients from St. Thomas's Hospital. The first was a child, aged nine, upon whom he had operated successfully for cleft palate. The chief point of interest in the case was that the patient had been operated upon previously at another hospital; and not only had no union taken place, but the right side of the soft palate had completely disappeared—and from what cause it was difficult to determine. This circumstance rendered the case peculiarly unpromising for operative procedure, but by dint of free incisions the parts came well together, and the result was most satisfactory. Two operations were required, the soft palate being closed first, and after an interval of a month the hard palate was dealt with by the so-called Langenbeck operation. There was no hare-lip in this case. The next patient exhibited was a young woman aged twenty-four, the subject of a single hare-lip on the left side, complicated with a fissure extending completely through the hard and soft palate. Mr. Mason was indebted to Dr. Evan Jones, of Aberdare, for the case. One point of interest rested in the remarkable fact that no operation had been performed on the lip in early life. In dealing with this case, which was by no means a promising one, Mr. Mason operated first on the palate, believing that the fissure in the lip would facilitate, as indeed it did, the steps of the operation. The soft palate was closed, and in order to relieve tension the bony palate was perforated and divided with a chisel, somewhat after Dieffenbach's plan. Partial union only took place, and this untoward result was probably attributable to the cold air entering the mouth through the fissured lip. He therefore thought it best, before doing anything more to the palate, to close the fissured lip, and this operation he performed about a fortnight ago, with marked improvement to the patient's personal appearance. He added that he hoped in a short time to complete the

closure of the palate, and in conclusion referred to a fact he had frequently noticed in connection with hare-lip in children and adults, that when a tooth is exposed to the air at the fissure in the lip, the tooth generally undergoes caries. In this instance the lateral incisor of the left side had become carious and had broken off at its neck.

Mr. HENRY LONG JACOB, of Birkenhead, exhibited a second lower molar tooth into which the wisdom tooth had become impacted on its posterior aspect.

Mr. CRAIGIE brought forward a remarkable case of irregularity of the teeth in the upper and lower jaw, occurring in a young lady aged thirteen, and made some remarks on the treatment, &c.—*Med. Times and Gaz.*

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON.

ORDINARY MEETING, HELD 9TH MAY, 1881.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President,
in the Chair.

Messrs. Kirby and Seager were proposed for election.

Presentations of specimens were made to the Museum by Mr. Alexander, L.D.S., and Messrs. Duncan and Harrison.

Casual communications were brought forward by Messrs. A. Alex. Matthews, W. A. Turner, and W. Hern.

Mr. Harrison read a paper on "Pivoting Teeth,"* and in the discussion the President, Messrs. Truman, M.R.C.S., L.D.S., C. D. Curnock, L.D.S., C. D. Davis, M.R.C.S., Duncan, W. Matthews, A. Matthews, and W. Hern took part.

Miscellaneous.

AMERICAN DENTAL CLINICS.

THE following is an account of one of the Dental "Clinics," spoken of by Mr. Vanderpant in the paper which appeared

* See page 507.

in our issue of May 1st (p. 445). The clinic takes place in the afternoon at one of the Dental depôts, and a report of the work done is read and discussed at a subsequent evening meeting held at the "office" of one of the members of the society. The following refers to a meeting of the "First District Dental Society of New York," held at the rooms of Dr. A. C. Hawes, 18, East Seventeenth Street, on the evening of April 5th, at which Mr. Vanderpant is said to have been present. When may we look forward to having such meetings in London, at which some of our most able operators shall exhibit their manipulative skill before a class composed of their colleagues and rivals? The advantages of this plan, both to the operator himself and to his less accomplished fellow-practitioners, are too obvious to call for remark. [Ed. B.J.D.S.].

In the absence of Dr. Bödecker, Dr. C. E. Latimer reported on the clinic as follows:—The attendance was about the average. Two operations were performed, one by Dr. Richmond, who filled a lower first molar with tin foil. The other was by Dr. M. H. Webb, with his electro-magnetic mallet, on Dr. Meigs' right superior second molar with the pulp devitalised. This operation occupied nearly the whole afternoon; Dr. Webb used two and a half books of gold, one of No. 60 and one and a half of No. 30. The buccal wall of the tooth alone remained, the other walls being gone below the margin of the gum; the operation was a very successful one and highly satisfactory.

In the course of the evening, at the request of the President, Dr. J. W. Clowes, Dr. M. H. Webb gave a description of the operation he had performed on Dr. Meigs' tooth. He said that gold wire was run into two roots of the tooth—into the palatal root and into one of the buccal roots. It was not screwed in, but a hook was made on one part of the wire, and the hook was made to fit into a depression in the side of the pulp-chamber. When the wire was put in place, the hook was pressed towards the depression, so that, in order for it to come away, it would have to bring with it nearly all the dentine between the depression and the surface of the root. The end of each root was closed with gold foil. The wire was barbed, and, though it did not fit very tightly before that was done, it then required a hand mallet to put it into position after agate cement had been placed in the root. While the cement was plastic, the wire was

driven into place. In order to get the rubber dam on the tooth, he inserted gutta percha several times previously, and pressed the gum up a good deal. The fracture extended three sixteenths of an inch above the margin of the gum up alongside the palatal root. A Delos Palmer clamp was placed on the third molar, a Tees clamp on the remaining part of the second molar—the tooth to be built up—and the rubber dam was then stretched over each clamp, and put on to the second bicuspid, the first molar having been lost. The buccal wall was standing, but he (Dr. Webb) cut it down an eighth of an inch and built it up with gold, so that now gold strikes the lower molar. This operation took one hundred and fifty grains, or two and a half books, of cohesive gold, and it was all put in place, and the crown and cusps properly shaped with the electro-magnetic mallet in four hours.

Dr. Meigs said that, when the operation was commenced, the palatal root was a little sensitive, but any one with a little endurance could, even then, stand the mallet if they only thought they could.—*Johnston's Miscellany*.

THE ART IN GLASGOW.

A CORRESPONDENT who has been doing duty in North Britain sends us the following notes from his case-book. He is evidently under the impression that the practices he mentions are peculiar to the place; we very much fear, however, that the names of several other large towns might be substituted without greatly endangering the probability of his story.—[ED. B. J. D. S.]

I was told by a gentleman the other day that, having been seized with toothache, he had consulted a dentist in this city, who from his appearance had evidently seen many years' practice *from hand to mouth*, as he was slightly elevated in the upper story—too much Attic salt possibly. As soon as the patient sat down in the chair the professor and an assistant secured his arms with straps and proceeded to business. But after the dentist had fumbled about for some time with his instrument in the patient's mouth, the latter managed by stratagem to get his hands freed, and straightway made for the door. Here he was arrested with a

demand for two and sixpence, which he refused to pay, saying that as the professor was evidently not in a fit state to draw the tooth, he should not allow him to draw the cash.

Another gentleman, after having a tooth extracted and paying the fee, told me that his dentist always gave him a glass of brandy after the operation. I asked him the name of the practitioner, and found that he was one who was well known in this city.

In another case the patient, a young man, on being charged half a crown for an extraction, said that his dentist only charged him a shilling and offered him a glass of "whisky," though, being a teetotaler, he always refused this, even as a medicine.—BACK AGAIN.

BOIL IT DOWN.

WHATEVER you have to say, my friend,

Whether witty, grave or gay,

Condense as much as ever you can,

And say it in the readiest way ;

And, whether you write on rural affairs

Or particular things in town,

Just a word of friendly advice—

Boil it down.

For, if you go spluttering over a page,

When a couple of lines would do,

Your butter is spread so much, you see,

That the bread looks plainly through.

So when you have a story to tell,

And would like a little renown,

To make quite sure of your wish, my friend,

Boil it down.

When writing an article for the press,

Whether prose or verse, just try

To utter your thoughts in the fewest words,

And let it be crisp and dry ;

And when it is finished, and you suppose

It is done exactly brown,

Just look it over again, and then—

Boil it down.

For editors do not like to print
 An article lazily long,
 And the general reader does not care
 For a couple of yards of song.
 So gather your wits in the smallest space
 If you'd win the author's crown,
 And every time you write, my friend,
 Boil it down.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our
 Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

SIR,—Doubtless many of your readers besides myself must have been puzzled to decipher the meaning of the mystic letters F.S.S., which appeared, in conjunction with a Hibernian L.D.S., in a remarkable advertisement noticed in the last number of your journal. Does it mean that the fortunate possessor is a Fellow of the Semitic Society? or is it a superior degree in Dental Surgery granted by St. George's Hospital; or has the advertiser thought proper to add "finishing touches" to his own name? The public must be sorely mystified as to the origin and meaning of the numerous titles—R.D., R.M.D., R.M.S.D., M.D.S., &c., now so ostentatiously displayed. But if this eminent teacher of Dental mechanics from St. George's and the Dental Hospitals, wishes to add another affix to those he now boasts, I would suggest that he should enroll himself as *Artium Societatis Socius*, an honorable distinction already possessed by

Your humble servant,

DR. PANGLOSS, L.L.D., A.S.S.

* * We have received several other letters relating to this advertisement. We are decidedly of opinion that its insertion in the daily papers is a distinct breach of the agreement which every recipient of the Dublin diploma undertakes to observe. If this gentleman really desires to obtain pupils, the medical and Dental journals are the best and the only proper means of making known his wishes.—ED. 'B.J.D.S.'

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

Communications have been received from Messrs. Charles Buckland (Sydney, New South Wales), Thos. Fletcher (Warrington), J. R. Bate (Tiverton), Geo. Rogers (Newton Abbot), C. J. Noble (Kensington), Rees Price (London), "Dr. Pangloss," "A Dental Apprentice," "L.D.S.R.C.S."

BOOKS AND PAPERS RECEIVED.

- 'Minutes of the General Medical Council from Jan. 1st to May 1st, 1881.'
- 'Deformities of the Mouth.' By Oakley Coles.
- 'Plastics and Plastic Fillings.' By J. Foster Flagg.
- 'Ohio State Journal of Dental Science.'
- 'Lancet.'
- 'Medical Times.'
- 'British Medical Journal.'
- 'Pharmaceutical Journal.'
- 'Practitioner.'
- 'London Medical Record.'
- 'Journal of the British Dental Association.'
- 'Johnston's Dental Miscellany.' &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

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VOL. XXIV.

Dental Surgery and Medicine.

ON THE USE AND ABUSE OF SOME OF THE MEDICAMENTS EMPLOYED IN THE LOCAL TREATMENT OF DISEASED DENTAL PULP AND ALVEOLAR ABSCESS.

Abstract of a paper read before the Midland Branch of the British Dental Association at the Annual General Meeting held at Liverpool, May 4th, 1881.

By LEONARD MATHESON, L.D.S.

THE medicaments of which I shall speak are some of those employed, *first*, in the restoration to a sound condition of diseased dental pulps, and in the preservation of their vitality and health; *second*, in the devitalisation and removal of diseased pulps; and *third*, in the treatment of alveolar abscess. And under these three heads I propose to arrange my remarks.

(1) Probably the agents hitherto most widely used in the curative treatment of diseased pulps have been *creasote* and *carbolic acid*. The most useful application of *carbolic acid* here is as an escharotic to the surface of the pulp when the latter is exposed. It forms an eschar, excludes the air and septic influences, probably also stimulates the pulp to healthy action, and certainly makes the latter more tolerant of the presence of any dressing or filling which may afterwards be placed in contact with it.

Since the introduction of the use of carbolic acid, *creasote* has to a great extent been discarded—principally on account of its unpleasant odour and taste, and also because it is not such a powerful escharotic as its successor. On the other hand, it possesses, in a greater degree than carbolic acid, two qualities, on account of which some practitioners still give it the preference. It is much more penetrating, carrying its effects more deeply into the substance of the tissues to which it is applied, and it is also more persistent—its aseptic virtue

is not so quickly diffused or absorbed as is that of carbolic acid.

But another medicament, possessing these qualities of penetration and persistence is *oil of cloves*. To most patients its odour and taste are not objectionable, and this combines, together with the fact that it is both an antiseptic and sedative, to make it a valuable drug. In two classes of cases it is especially useful. First, where, owing to irritation of the pulp, there has been occasional uneasiness and slight aching in a tooth for a few minutes or an hour or two, at a time. In the great majority of such cases there is no need whatever for any stronger measure than the application of a sedative, and one or two dressings of oil of cloves, on spongoid or paper-fibre lint, under soft gutta percha or Fletcher's Artificial Dentine, generally suffice to produce a cure. Very frequently the symptoms described above occur without there being any exposure of the pulp, indeed, the latter is often found covered by a layer of comparatively sound dentine, and it is therefore essential to success that the medicament applied should penetrate the dentine in order effectually to act upon the pulp. The second class of cases referred to, is where a large mass of softened and intensely sensitive dentine is found overlying the pulp. Here it is frequently impossible to cut away the sensitive mass at once, but a single dressing of oil of cloves left in the tooth for a day or two under a temporary stopping usually makes the removal of the decayed tissue quite bearable. In the conditions just particularised—namely, irritation of the pulp and hypersensitive dentine—the penetrating quality of the oil makes it far more efficacious than carbolic acid.

Besides oil of cloves, I have for some time been using, under similar circumstances, Fletcher's Carbolised Resin (a preparation of carbolic acid and resin, held in solution by chloroform), with the action of which I have been much pleased. It possesses in a remarkable degree the power of reducing the acute sensitiveness of the soft pulpy mass of decalcified tissue so often found in young teeth attacked largely by decay, appearing to dry it up and harden it, and making it comparatively insensible to the stroke of the excavator. And as a direct application to the pulp when exposed it is very efficacious, both in allaying irritation and in restoring the exposed surface when diseased to a sound condition. One not infrequently meets with cases where caries has laid bare the pulp, but where there is no history of acute inflammation, or of odontalgia, beyond a few minutes' occasional aching caused by the pressure of food or the contact of hot or cold fluids. At the same time there is almost invariably

more or less congestion of the exposed part, and sometimes superficial ulceration giving rise to a slight ichorous discharge. To save such pulps is not always an easy matter, but I have found, even in such extreme cases, satisfactory results to follow the application (generally made more than once) of carbolised resin.

(2) To pass now from the consideration of those medicaments used in the conservative treatment of the dental pulp, to those which are employed in the devitalisation of that organ, and in the treatment of the tooth subsequent to the removal of its pulp, the drug next to be mentioned is *arsenious acid*, as being without question the most effectual agent we possess for destroying the vitality of the dental pulp. Of the various forms in which this escharotic is applied—whether alone or in conjunction with other drugs—whether made up with carbolic acid, oil of cloves, or some other vehicle into a paste, or used in the form of a dry powder—I need not here speak in detail.

I have not myself found in the combination of morphia with arsenic the marked advantage which some practitioners speak of. I have made use of such a combination not infrequently, but I cannot say that I have noticed much if any difference in the percentage of cases where pain has been set up by the application—as compared with such a percentage in those cases where arsenic has been used alone. But though doubtful as to whether the morphia is of any real service, I am inclined to think that the tannin is sometimes of use. The destructive inflammation set up in the pulp by arsenic sometimes results in the rapid softening and disintegration of that tissue, whereby its removal is made a matter of more than usual difficulty. Tannin, to some extent I think, prevents this, by combining with the fibrinous elements of the pulp, and thereby giving it, even after it is devitalised, a tougher consistence—a state in which it is more easily got hold of and removed.

I believe that a favourite mode of using arsenious acid is in the form of a paste, but on the whole the dry powder is much to be preferred, as in most cases it is decidedly more manageable. When a paste is used it should be a stiff one, so that it will only go just where it is wanted. The great and, to my mind, fatal objection to the preparation known as Baldock's Paste, is its extreme softness, which makes it flow in any direction open to it upon the application of the least pressure.

The method of using arsenic which I find the most generally successful is the following:—After a free removal of decayed tissue, care being taken on the one hand not to

wound the gum when the cavity extends beneath it, and on the other hand to expose the pulp as widely as possible, the cavity is well mopped out with carbolic acid or oil of cloves in order to allay, as far as possible, whatever general irritation of the pulp may exist and to numb the extreme sensitiveness of the exposed part—thereby enabling the latter better to bear the contact of the arsenical dressing, and lessening the possibility of odontalgia resulting from such contact. After being thus prepared, the cavity, especially round its margin, is carefully dried, and then a disc of red blotting-paper (the red colour being of use in clearly distinguishing the dressing from the tooth substance in cavities difficult of access) is moistened with oil of cloves or carbolic acid, made to take up a dose of powdered arsenic, and laid lightly over the exposure. In the majority of cases, by far the most convenient preparation for use as a temporary filling over the arsenic is Fletcher's Artificial Dentine. Its one disadvantage is the momentary twinge caused by its coldness when it approaches the pulp. But this drawback is quite outweighed by its ready adaptability to almost any sort of cavity by its extreme softness—which reduces to a minimum, if it does not prevent altogether, the chance of pressure on the pulp—and by the absolute manner in which it seals up the application. In cases where, the gum having grown into the cavity, it is desirable to insert a temporary filling to exert pressure upon the intruding tissue, it is a useful plan, after adapting the arsenical disc, to seal it with a cap of vulcanite or soft metal charged with Fletcher's Dentine; then gutta percha or mastic and wool can be firmly packed against the gum without any risk of pressure being made upon the pulp.

I believe the most frequent cause of the severe pain which sometimes follows the application of arsenic, is insufficient exposure of the pulp. Wherever it can be done, the latter should, by one or two firm strokes of a spoon excavator, be laid bare as widely as possible, for, though often a very painful procedure, it is one which, if accomplished, is generally the means of saving much more suffering than it inflicts. Suffering due to pressure of the dressing upon the exposed surface of the pulp need never occur. For such pressure is invariably indicated by a sudden and immediate access of pain upon the insertion of the temporary filling; consequently, when such pain shows itself the filling ought to be removed and reapplied.

In those cases where, in spite of a free exposure of the pulp and the careful avoidance of pressure upon it, severe aching (sometimes of long duration) follows the application

of arsenic, there is generally found to be more or less extensive calcification of the pulp. Under such circumstances the pain is sometimes even more severe than where arsenic has been applied without an exposure, and what makes the matter worse is the fact that sometimes, even after several hours' severe pain, a considerable portion of the pulp, cut off by nodules of secondary dentine from the action of the arsenic, is found to have been unaffected by the latter, still retaining its vitality. Fortunately, a second application of the escharotic is rarely if ever productive of pain, and this in most cases is sufficient to devitalise the remainder of the pulp. When, however, the root canals are so blocked by nodules as to prevent the arsenic from acting upon their contents, I have in such cases found creasote of value, both in finally removing any odontalgia arising from the remains of the pulp, and in drying up and rendering comparatively innocuous the latter, when it cannot be entirely removed. I may say that this is the only use to which I put creasote, and whilst in general it is to be avoided in the treatment of roots on account of its irritant action on the periosteum, in the exceptional cases just cited I have never found ill effects to follow its application; probably because, owing to the condition of the canals, little if any of the creasote reaches their apices, and also because, where there is a constitutional tendency to calcareous degeneration, there is in most cases less liability than usual to suppurative inflammation of the soft tissues.

Where periostitis follows the extirpation of the pulp, the medicaments which I have found most effectual in allaying the irritation are either oil of cloves, or a combination of carbolic acid, aconite, tannin, and glycerine—

Tinct. Aconit. Fort.	. . . . .	4 parts,
Acid Carbol.,	} āā	2 „
Acid Tannic,		
Glycerine	. . . . .	4 „

being useful proportions. The cloves oil I prefer where the canals are narrow and difficult to reach, as it is more penetrating of the two, but where the canals are open, allowing the passage of an appreciable amount of fluid, the second preparation will generally be found the most efficacious. I have found this dressing of great value in several obstinate cases of discomfort following on the devitalisation of the pulp, where it has been impossible to remove the whole of the dead organ, owing to the position of the cavity and the shape of the roots.

Before leaving the subject of devitalisation of the pulp, a

word or two must be said on the abuse of arsenic, for valuable and important as it is as a therapeutic agent in the hands of the Dental Surgeon, yet it must not be forgotten that this drug is open to great abuse. I refer, in the first place, to those cases in which arsenic, escaping from the cavity in which it has been placed, does injury, more or less severe, to the neighbouring tissues of the gum, mucous membrane, and bone. Happily such cases are not numerous, and if due care were always taken properly to seal up the arsenical dressing, they would be rarer than they are. Under certain condions, as where the cavity is unusually inaccessible, or it extends largely under the gum, or where there is an extraordinary flow of saliva, or where a combination of these difficulties is found, under such conditions it is sometimes impossible to make sure of applying a water-tight covering over the arsenic. In such a state of things it is sometimes possible and advantageous to apply the dressing by means of an artificial cavity, made by the drill for that purpose. But where this latter plan cannot be adopted, it is better, rather than running the risk of an ulcerated gum and possible subsequent necrosis of a portion of the alveolus, either to make use of some less effectual agent than arsenic or else extract the tooth.

But in the second place, arsenic is abused in another way, which, though causing less serious results in individual cases, is productive of an amount of harm and loss to the dental organ, that in the aggregate is probably greater than that resulting from the deleterious action of the drug on the gums and alveolus. Without question arsenic is largely abused, in that it is very frequently applied where, instead of such a course being taken, the pulp ought to be saved. It is far too common a practice indiscriminately to employ arsenic whenever an attack of odontalgia indicates disease of the pulp, although the diseased condition may only consist in irritation or local inflammation quite amenable to the action of a sedative. Whilst putting high value on arsenic in its proper place, and whilst there should be no hesitation in employing it when necessary, even at the risk of its giving rise temporarily to considerable pain, yet in holding by the principle that the best surgery is that which aims at maintaining normal physiological and anatomical conditions, it must be insisted on that arsenic should never be used when there is a fair chance of preserving the vitality of the pulp.

In the third place, arsenic is abused, that is, its power for good is diminished, and pain and discomfort, sometimes of a serious and incurable character are ultimately brought about, by the pernicious practice of leaving *in situ* the devitalised

pulp instead of removing it. The entire removal of the dead tissue should never be omitted; and although this statement will be endorsed by every conscientious operator, its assertion and even reiteration is not needless, for owing to the tedious, difficult, and sometimes painful nature of the operation of removing the pulp, it is very often left undone. A tooth containing a dead pulp may remain comfortable for a considerable time, but in the majority of cases, periostitis, and subsequently alveolar abscess are certain sooner or later to supervene.

(3) To the subject of alveolar abscess, and the consideration of some of the drugs used in its treatment, I would now direct your attention for a few minutes. Success in dealing with cases of alveolar abscess often depends on the care and delicacy with which the first steps in the necessary course of treatment are performed. Before anything else is done, the pulp chamber and root canal or canals leading up to the abscess ought to be carefully and thoroughly cleansed of the accumulations (with which they are sometimes quite filled up) of decomposed putrescent *débris*. Here very careful and delicate manipulation is often necessary to guard against the danger of forcing these accumulations through the apical foramen into the abscess sac, and so renewing the very irritation which it is one's object to allay; this danger is particularly to be guarded against in two classes of cases, first where an abscess has not yet actually formed, but where the canal is full of foul matter from the decomposition of the pulp; and second, in old-standing chronic cases where there is, at the time of treatment, no active discharge going on.

The plan which I have found the safest and most generally successful in the cleansing of foul pulp canals is, first of all, to pass up them a very fine hair broach, or—what I have found better still, and very useful for this purpose—one of Donaldson's "spring-tempered nerve bristles." This, whilst it cannot carry anything up the canal before it, effectually breaks up the sometimes half solid matter contained in the root, and also gauges the length and finds out the direction of the root. The loosened *débris* or fluid discharge (as the case may be) should now be taken up and removed by cotton wound on the bristle, the merest strands of wool, however, being used, so as to avoid any tight fitting of the bristle and consequent piston action on its part. When as much as possible of the canal contents have been removed in this way, a syringe gently used with warm water will generally be of service in effecting the removal of much that is left. But the syringe should be followed by the use of the bristle and cotton again, until all foul matter has been

entirely removed. Then (and not till then), may a dressing be pumped up the canal. For if before the latter is properly cleaned out, some medicament is vigorously pumped up it, the application is abused, and such a course may do more harm than good.

Carbolic acid, oil of cloves, eucalyptus oil, and the combination mentioned above of aconite, tannin, carbolic, and glycerine, are the agents which I find most generally useful in the treatment of these cases. Until lately the medicament most universally employed has probably been carbolic acid, used either alone or with glycerine or oil. It is still of great service under certain conditions, although under others its use has been to a large extent superseded by antiseptics like oil of cloves and oil of eucalyptus. In actively discharging abscesses, one or two thorough applications of carbolic acid pumped up the canals are often the means of effecting a cure. By its escharotic action the acid destroys the secretory power of the sac wall, whilst its further application in a more dilute form stimulates healthy action in the periosteal tissue. It is often also of value when applied in the same way to chronic indolent abscesses with fistula, from which there has been for some time a more or less constant discharge. But when these chronic cases present themselves for treatment, as they frequently do, not because they are the seat of pain, but on account of the annoyance and discomfort occasioned by the discharge, then carbolic acid is not always the best medicament to employ. For its escharotic action, so useful in recent, sometimes give rise in chronic cases to considerable irritation of the periosteum, and subsequent pain and uneasiness of the tooth. This periosteal irritation is still oftener the result of the employment of carbolic acid in those cases of undeveloped abscesses already referred to, where the predisposing cause to abscess (consisting in a pulp chamber and canals full of putrescent matter) exists, but where the exciting cause (such as a passing cold, a lowered condition of the system, or the like) has not yet made itself felt. Here, the death of the pulp, and subsequent proximity of its putrescent remains to the periosteum surrounding the apical foramen, produce in that periosteum a lowered condition of vitality, and make it abnormally susceptible to external stimuli. Under such circumstances the employment of any dressing of an irritant nature acts as the exciting cause, and produces the very trouble which it is one's object to prevent.

In the treatment of such conditions, therefore, I generally employ, and with very satisfactory results as a rule, either *eucalyptus oil* or *oil of cloves*. Both are antiseptics—the

former a powerful one, and they both possess a double advantage over carbolic acid in that they are sedative rather than irritant, and in that a dressing of either retains for a much longer period than a carbolic dressing its antiseptic quality. Being also more penetrating than the latter, they pass with greater readiness up narrow and tortuous canals, and soak more thoroughly into the dentine of the root. That they are both solvents of gutta serena is yet another fact in their favour, as this quality helps to ensure a water and airtight covering to the dressings—a condition not to be despised, when it is remembered how easily septic influences are conveyed by water and air. As to the relative value of the two oils, I usually give the preference to the eucalyptus, as being perhaps the more powerful of the two. The clove oil is, I think, more distinctly sedative than eucalyptus, and I therefore use it where sedative action is especially demanded.

Where there is considerable periosteal irritation in connection with the abscess undergoing treatment I find the *tannin* and *aconite* mixture of great value, and generally obtain speedy relief by its means.

To use *creasote* in the treatment of alveolar abscess is an abuse of that drug. As I have already remarked, the alveolar dental periosteum is readily irritated by it, and for this reason, as well as on account of its odour, which is so decidedly objectionable to most people, its employment in alveolar abscess is greatly to be deprecated; for it may easily do more harm than good, by producing or aggravating periostitis to such an extent as to necessitate the ultimate removal of the tooth undergoing treatment.

In concluding this brief review of the varied applications of some of our local medicaments, I should like to say a word or two on the influence which may be exerted by the knowledge of constitutional conditions or tendencies upon the local treatment of dental disease. For a careful consideration of a patient's general health, of any known or suspected diathesis or constitutional taint, is often of great value in helping a determination as to the best course of local treatment to adopt. I cannot here enter at length into this interesting question, but I may just indicate its bearing by one or two examples. In cases of pulp trouble arising in scrofulous or syphilitic subjects, or where in the absence of these specific conditions there is a feeble and cachectic condition of system, curative treatment is generally found to fail, and the course distinctly indicated is devitalisation of the affected organ. Again, some temperaments, even in health, show a marked intolerance of operative interference with the

dental periosteum and a strong tendency to suppurative inflammation of that tissue. Here, great care must be taken to avoid irritation of the periosteum in the after-treatment following the removal of a pulp, or in alveolar abscess. And in cases of rheumatic diathesis, there is very frequently a disposition to calcareous degeneration of the dental pulp, so that if the constitutional tendency is known before the local treatment is commenced, one is enabled to warn the patient of probable pain if arsenic has to be applied, or, better still, one can make a special endeavour to save the pulp, or to reduce its vitality by some other means.

In considerations of this kind, as well as in those suggested by the local conditions themselves, there is much room for the exercise of care and discrimination in the use of local medicaments. The treatment of which their use forms a part may often involve the expenditure of a considerable amount of time and trouble, as compared, for example, with the rapidity and ease (so far as the operator is concerned) of extraction; but the necessary time and labour should never be grudged when by their means painful and previously worthless teeth may be restored to comfort and utility, instead of being prematurely and needlessly lost. Certainly, the more care and skill we display in the treatment of difficult and tedious cases the more worthy shall we be of the confidence of our patients, and the more honoured shall we help to make a profession which has for its highest aim, the preservation in a useful and healthy condition of the natural organs.

ON THE SECTORIAL TEETH, AND THEIR MODIFICATIONS IN TERRESTRIAL CARNIVORA.

A paper read before the Odonto-Chirurgical Society of Edinburgh, March 11th, 1881.

By ANDREW WILSON, L.D.S.Ed.

IN the terrestrial Carnivora we find certain teeth, one on each side, at the back part of both jaws, which, more especially in the typical families, Felidæ and Hyænidæ, are conspicuous by their great development. The tooth in the lower jaw closes inside and slightly behind that in the upper, and, as they play on one another after the manner of scissor blades, they have received the name of "sectorial" teeth from Owen.

The sectorial tooth in the upper jaw is the last premolar

(the fourth of the typical mammalian dentition). It consists of two portions—a buccal, which is a more or less sharp-edged blade, running parallel to the alveolar ridge, and divided by notches into two or three cusps; the other a lingual, composed of one or more tubercles or cusps. That in the lower jaw is the first molar. It consists of similar portions, only differing in that the buccal portion may be subdivided into two, a mesial, called the blade, having a pair of cusps, and a distal, or tubercular, which latter may vary from being merely rudimentary to forming the greater part of the tooth.

The relative development of these several portions, as to size, number, and form of cusps, varies very greatly in the several groups, families, and genera. In one genus, *Hyæna*, we actually find these showing specific distinctions.

The terrestrial Carnivora are now arranged in three groups, according as they are dog-like, cat-like, or bear-like :

Cynoidea	Canidæ	Canis.
Œluroidea	Viverridæ	Herpestis, &c.
	Hyænidæ	Hyæna.
	Felidæ	Felis.
Arctoidea	Mustelidæ	{ Mustela, &c.
		{ Lutra.
		{ Meles.
	Procyonidæ	Nasua, &c.
	Ursidæ.	Ursus.

The sectional teeth reaching their more typical form in the Felidæ, we will begin with that family, following with the Hyænidæ, which bring us naturally to the Canidæ. Returning to the Œluroidea, we will consider those of the Viverridæ, an aberrant family, forming the link connecting the Carnivora with the Insectivora, concluding with the Arctoidea, which form a more connected line from the Felidæ, beginning the group with the carnivorous weasels, ending with the nearly omnivorous bears. As a rule, we will find that the more purely carnivorous the species the more will the “blade” portion of these teeth be developed over the tubercular.

In the genus *Felis*, we have the upper sectorial with the blade very sharp-edged, two notches dividing it into three cusps, of which the anterior, the shortest, is conical, the middle, much the longest, is sharply triangular, the apex, pointing backward. While the posterior is broad and nearly square, its cutting edge, directed obliquely toward the cheek, is marked by a furrow so as to show two nearly equal divisions, the distal angle being a very sharp cusp.

On the buccal surface, the several divisions are well rounded, a deep hollow or recess separating the middle and posterior divisions. From the apex of the sharply pointed middle cusp, on its buccal surface, a well marked longitudinal ridge passes slightly obliquely upwards, merging in the cingulum; while on its lingual surface another passes upwards, forwards, and inwards, terminating in a rudimentary tubercle or cusp, placed in a line transversely with the anterior cusp of the blade. The lingual surface of the blade slopes inwards to the gum, and is quite plain. The mesial surface is concave, and is broad compared with the distal. The cingulum is well marked, more especially along the buccal surface, being most pronounced at the mesial border of the anterior cusp.

The tooth is secured in its socket by three roots, of which the smallest supports the lingual tubercle; while of the two buccal, the anterior is much the smaller, supporting the anterior cusp, and half the middle one, the posterior supporting the posterior cusp and the remaining half of the middle one.

The lower sectorial tooth consists of "blade" only. It is divided by a notch and fissure, resembling the letter Y, into two nearly equal portions, which are triangular in form, and have very sharp angles. The buccal surface forms a very flat, smooth curve, while the lingual surface shows each cusp massy and rounded; and well-marked longitudinal ridges, a deep hollow and pit separating the two cusps. The mesial margin slopes obliquely backward to the apex of the anterior cusp, while the distal margin descends nearly perpendicularly from the apex of the posterior cusp, which is the longest. The cingulum is well marked, more particularly on the lingual surface, and is most decided on base of the distal surface, where it forms a marked projection. The tooth has two roots, a very large mesial and a much smaller distal.

I have given a rather minute description of this, the ordinary Feline type, so as that, in noticing the forms in the other Carnivora, it will only be requisite to mention those points in which they differ from it.

Although the genus *Felis* is numerous in species, they nearly all have this form, the exceptions being found in the short-tailed species, the lynxes, which by some authorities are formed into a separate genus. In the more marked species of these, such as the Canadian Lynx, the lingual tubercle of the upper sectorial is almost obsolete, and is placed at the anterior portion of the base of the middle cusp, the apex of which points forwards. In another genus of

Felines, *Machairodus* (called, from the peculiar and formidable shape of their upper canines, sabre or saw-toothed Tigers), none of whose species are recent, the lingual tubercle of the upper sectorial was obsolete, there was no palatine root, and the anterior cusp was divided by a furrow, so as to show as two smaller cusps, a form very closely represented by the temporary sectorial in the Felidæ, as you will see by this example in *F. canadensis*. The lower sectorial had the distal segment of the blade very much larger than the anterior, and its cutting edge was almost horizontal, in place of the long sharp cusp of all recent Felidæ.

It is surprising that all the species of this genus, which, but for the weakness of its lower canines, would be by far the most formidable of the Carnivora, should be extinct, the more especially as they had a most extensive geographical distribution, their remains having been found in Britain, Continental Europe, India, Brazil, &c.

In the Hyænidæ the upper sectorial has a general resemblance to that in the larger Felidæ, only, proportionally to the size of the skull, it is much larger and more massive. The anterior cusp is relatively larger, and the whole cutting edge of the blade is more blunt. The lingual cusp occupies the same position as in the Felidæ, but is very much more developed. The lower sectorial is also a thick massive tooth, but is small in proportion to the upper. The anterior segment of the blade is much the largest, the cusps are of nearly equal length, and the hollow between the two segments is very shallow, compared with that in the Felidæ. The posterior tubercle, which was either obsolete or nearly so in that family, is now a distinct cusp, having its edge placed transversely, and separated from the blade by a distinct notch. In this genus, as I have already mentioned, we find well-marked differences in the form of the lower sectorial teeth in the several species. Thus, in *H. crocuta*, the lingual surface of the blade is much as in the Felidæ, while in *A. striata* we find a small cusp rising from the base of the posterior half of the blade, and reaching to a level midway between that cusp and the cusp of the tubercular portion. This latter cusp has its edge much narrower in *H. crocuta* than in *H. striata*. In both upper and lower sectorials (more especially on the lingual surface of the latter) the cingulum, or basal ridge, is very strongly marked in the Hyænas. Before noticing the teeth in the remaining family of this group (the Viverridæ) we will take up those in the Cynoidea, as they follow more naturally.

In the Canidæ we have a decided change in the form of the upper sectorial, the anterior cusp being sloped off, and

its base merged in that of the middle cusp. The mesial surface is very sharply concave or grooved, and the lingual cusp, while occupying the same position relatively to the base of the tooth, as in the Hyænidæ, is much less strongly marked. In the lower sectorial the posterior division of the blade is the largest, and its cusp is very much the longest. The small lingual cusp seen in *Hyæna striata* is well marked, and the tubercular portion is now relatively much larger, and is decidedly bicuspid, the cusps, buccal and lingual, being separated by a deep groove, bounded behind by a ridge of enamel. In some species (Fox, &c.) we have a minute supplemental cusp on the lingual surface of the tubercular portion, close to the blade. In one of the extinct species, *C. primævus*, the anterior cusp of the upper tooth was slightly developed, and the lingual cusp on the tubercular portion of the lower tooth obsolete.

Some extinct species seem to connect the genera *Canis* and *Felis* more closely. Thus *Dinictis felina* has the upper sectorial strongly canine in form, in connection with a dentition approaching the feline, its formula being $I_{\frac{3}{2}} C_1 PM_{\frac{3}{2}} M_{\frac{1}{2}}$, which only differs from that of *Felis* in there being one PM and one M more in the lower jaw, and both are very slightly developed, while the lower resembles the feline temporary sectorial.

In the Viverridæ the upper sectorial shows on its buccal surface not unlike that in the Felidæ, only the anterior cusp is relatively slightly developed. The mesial surface is concave or grooved, and broader in proportion to the buccal, while the lingual tubercle, still placed in a line with the anterior cusp of the blade, is now a strongly marked cusp, only surpassed by the middle cusp of the blade, from which it is separated by a deep groove.

In some of the genera (*Cynogale* and *Bassaris*) this lingual cusp is bilobed. The lower sectorial shows a much more decided recession from the type. The blade lies obliquely to the alveolar ridge, its two buccal segments are nearly, if not quite, equal in width, and the cusp of the posterior one is the longest. The lingual cusp noticed in the Hyænidæ and Canidæ is now well developed, and separated from the posterior buccal by a deep notch, so that this part of the tooth is tricuspid. The posterior or tubercular portion of the tooth lies parallel to the alveolar ridge. It bears about the same proportion to the blade as in the Canidæ, and its margin is divided into three cusps, a deep notch, most decided on the lingual surface, separating them from the blade. The cingulum is well marked, more especially on the mesial surface of the lower tooth. In the genus *Para-*

doxurus, the species of which live chiefly on fruit, the tubercular portion of the lower tooth is much larger relatively to the blade. In the numerous sharp pointed cusps of these teeth in the more carnivorous Viverridæ we see an indication of an approach to the Insectivora, some of the members of which order do not hesitate to eat flesh, as, for instance, the Hedgehog (*Erinaceus europæus*).

We have now reached the Bear-like group, and begin with the most predacious and bloodthirsty genus of its most carnivorous family, the Mustelidæ.

In *Putorius* (Weasels, &c.) the upper sectorial has the anterior cusp of the blade very slightly marked. The middle is a long sharp cusp, which gradually merges in the posterior cusp, whose sharp knife-edge is horizontal. The mesial surface is deeply grooved, so as almost to isolate the slightly developed lingual tubercle. The lower sectorial has the blade much as in the Felidæ, and, separated from it by a deep notch, we have the tubercular portion, consisting of a single cusp, whose sharp edge lies in a line with those of the blade. In both teeth the cingulum is very decided.

In the genus *Gulo* the teeth are much the same as in the Weasels; while in *Mustela* (Martins, &c.) the lingual cusp, already seen in the lower sectorial of the Canidæ, makes its appearance.

In the Skunks (*Mephitis*) the upper sectorial ceases to be larger than the molar. Its lingual tubercle, superficially large, is attached to the whole base of the blade. Its free surface is very convex, almost semi-elliptical, thus giving the tooth a decidedly triangular form. In the lower sectorial the crown becomes almost tubercular, carrying six small cusps.

The genus *Lutra* (Otters) has the anterior cusp of the blade in the upper sectorial rather more developed than in *Putorius*, and separated by a sharp groove from the long pointed middle cusp, which again is separated by a shallow notch from the posterior cusp, the apex of which projects downward and backward. The mesial surface is very slightly convex, and the lingual tubercle is large, shallow, and semicircular, extending nearly the whole length of the blade. A circular depression occupies its centre, and the enamel forms a bounding ridge along the very convex lingual surface. The palatine root, now the strongest, lies in a line with the middle cusp. The lower tooth resembles that in the Viverridæ, in having the blade tricuspid, but the lingual cusp is as long as the others. The tubercular portion, fully half the width of, and broader transversely than, the blade, consists of a shallow cusp, rising toward the distal margin,

and bounded by small semi-obsolete tubercles, of which that on the buccal surface is the most marked. In both this and the following genus the lower tooth has an intermediate root, more or less decided.

In the Badgers (*Meles*) the upper sectorial is very much smaller than the molar. Its blade has the anterior cusp almost obsolete, and the posterior margin of the large pointed middle cusp slopes backward to the distal angle, the posterior cusp being slightly marked. The mesial surface is slightly concave, and the tubercle, which extends the whole length of the blade, is smaller and narrower laterally than in the otters. The enamel forming its margin is somewhat tuberculated, and a well-marked groove, terminating at the distal angle, separates it from the blade. In the lower tooth the blade is tricuspid, the lingual cusp being to the distal side of the posterior buccal one, and the tubercular portion (now larger than the blade) has five marginal cusps, of which the anterior lingual is most pronounced, the centre being occupied by a wide groove, which terminates as a notch on the buccal surface, dividing the tubercle from the blade.

In all the Mustelidæ the cingulum is well marked.

In the Procyonidæ the principal genera in which are *Procyon* (Racoons) and *Nasua* (Coatis), we have the upper sectorial rather smaller than the first molar, and showing on its blade a return to the form in the Hyænidæ, both anterior and middle cusps being well developed, while the posterior is rather less so. The mesial surface is slightly concave, the distal convex; both are nearly equal in extent, so that the tooth assumes a quadrate form. The lingual tubercle is as large as the blade, and carries two cusps, of which the anterior is nearly as long as the middle buccal cusp, with which it is connected by a ridge of enamel. The posterior cusp is shorter, but varies in the several genera. The palatine fang is in a line with the middle cusp. In the lower sectorial we find a decided change, the blade, now much smaller than the tubercular portion, is tricuspid; but only one of the cusps is buccal. Connected to it by a ridge of enamel is the posterior lingual, which is the longest, and separated from these by a deep groove is the smallest, the analogue of that which in the Carnivora already described, was the anterior buccal cusp. Separated from the blade by a deep cleft is the tubercular portion, the centre of which, deeply hollowed, is bounded on its distal margin by two cusps, which rise to a level with those of the blade. A small rudimentary cusp is placed between these, and another one between the lingual cusp and the blade.

We now come to the last family, the Ursidæ or Bears, in

which the teeth, more especially the lower, have almost lost their sectorial character. The upper sectorial is less than half the size of the first molar. The anterior cusp of the blade is sloped off, as in the *Canidæ*, the middle cusp is long and strong, and the posterior cusp is also conical and pointed. The tubercle is connected to the posterior half of the blade, and on its anterior portion carries a well-marked, pointed cusp, which lies in a line with the notch separating the cusps of the blade, from which it is separated by a deep groove. The palatine and posterior buccal roots are frequently conate. The lower sectorial is much narrower than the second molar. The blade, which forms nearly two thirds of the tooth, is tricuspid, of which the anterior buccal is now mesial and separated from the others by a deep notch. The lingual is placed a little behind the long buccal. The tubercular portion does not rise to the level of the blade, from which it is separated by a deep notch. It has two cusps, one buccal the other lingual, the latter being longest. The cingulum is very strongly marked on both upper and lower teeth.

In the less carnivorous bears we find, in addition to the cusps described, several supplementary ones, which are comparatively small. These are placed on the posterior cusp of the blade in the upper tooth, and on the lingual surface of both blade and tubercle in the lower tooth. In the temporary series of the *Carnivora*, the sectorial teeth are the last molar below, and the last but one above. The latter is usually shed later than the molar behind it, an arrangement which gives the animal the use of the temporary sectorials until those of the permanent series are fit for use. As a rule, the upper sectorial is more carnivorous in form than its successor, while that in the lower jaw is less so.

In conclusion, I have to apologise for the seeming dryness of my subject, and hope that that will not prevent any of the members who have a taste for comparative Dental anatomy from making a recreation of the study.

Hospital Reports and Case-Book.

CASE OF INDUCED NECROSIS AND ITS RESTORATIVE TREATMENT.

By W. H. ATKINSON, M.D., D.D.S., New York City, U.S.A.

At the suggestion of Mr. Vanderpant I furnish the history of the following case.

A young lady, of fifteen, went to Germany to attain proficiency in music. Having occasion for the services of a Dentist to arrest decay in the superior lateral incisors, she was subjected to the *couleur de rose* treatment of arsenic. Both roots abscessed, and she was so distressed with pain and swelled face as to utterly unfit her for the prosecution of her studies. She returned to her home in the State of Pennsylvania, and was there attended by a graduate in Dentistry, and the case so mitigated as to enable her to be sent to Wellesley College in the State of Massachusetts. While there she was attended by a Dentist of repute, who was only able to palliate her difficulties. Her condition still remained so unsatisfactory as to prevent the continuance of her studies.

She returned to her home and to the care of her former Dentist. By his recommendation she came to New York in the last days of December, 1879, with her mother, and (she being now sixteen years old) came to me for advice. Upon examination there was found to be solution and absorption of nearly the entire socket of the right superior lateral incisor, with a discharge from a fistulous opening at the point of the root, high up under the lip, with another fistula by the side of the root next to the central incisor.

On the left side more extended solution of the socket of the superior lateral incisor was present, with a multiplicity of fistulous openings through the gum along the entire length of the root on its anterior aspect, with necrosis of the transverse alveolar plates between the lateral and central and the lateral and first bicuspid, against which the lateral impinged, the cuspid remaining high up in the calcigerous cyst in which it was formed, on a line with the wing of the nose, with necrosis or caries of the anterior portion of the bony cyst in which the tooth was developed. The necrotic transverse processes and the dead anterior wall of the cyst were then removed in the following manner:—The gum was slit entirely up over the tumour, and peeled back with a spud to where the tissues were healthy, then a cross-cut engine bur was used to rasp all the dead parts away, there being no line of demarcation between the living and dead parts of bone. An assistant held the soft parts back with a spoon-shaped piece of silver plate to protect them from injury by the bur. The loose spiculæ of necrosed bone were carefully picked away, and the lips of the wound accurately adjusted without *any* washing, and no other dressing than a bibulous paper pack smeared with tannin and glycerine laid under the lip over the coaptated margins of the wound. The patient was dismissed with instructions to keep the

mouth sweet by frequently rinsing with a solution of bicarbonate of soda.

This dressing, alternated with a solution of salicylic acid in alcohol, was repeated for a few days, until the swelling and soreness had completely subsided. At this stage, the loose teeth having been secured by ligatures of silk, an impression was taken upon which to cast a regulating fixture of the Reese gold alloy cast base with a platina and iridium bar describing an arc corresponding to a line upon which the teeth were to stand when in their true position. A peculiarity of this fixture for regulating is casting caps over the teeth that are not to be moved, allowing a bar to extend over the teeth to be removed without coming in contact with them, upon which the opposing teeth may occlude in eating, thus avoiding the irritation that would follow if the teeth to be moved were allowed to be interfered with at each closure of the jaws.

The fixture was next inserted and rubber rings, cut from tubing, were slipped over the bicuspid, incisors, and right superior canine, and attached to the bar by ligature in such manner as to draw them in the desired direction.

A portion of the flap of soft tissue over the crown of the left superior cuspid was now removed to allow the passage of a silk ligature around it to which to secure a rubber ring for the purpose of bringing it into place, which was effected without destruction to the life of the pulp, notwithstanding the tooth had been drawn down more than two thirds of its entire length, in a little over a month. At this stage, the teeth being in position, an impression was taken and a fixture constructed of the Reese metal with platina and iridium clasps, so as to secure an utricular pocket, or box enclosing the territory in which it was desired to have the new socket, attachments, and gums reproduced. With this fixture in the mouth and a platina wire keeper around all the superior teeth in front, the patient was dismissed in May, thus spending four months in accomplishing the reproduction thus far. When I saw the case last Saturday (May 14th, 1881), there was new growth even lower than the normal margins of the festoons of the gums, on both sides of the mouth, including the cuspid brought down, and with the exception of the margins, which have no epithelium, the tissues were normal. The right superior lateral has a new bony socket so exactly like the original as to defy detection, and the gum on this side is perfectly normal. The bony socket of the left superior lateral is well re-formed but not yet fully calcified. An entirely new alveolus on the anterior face is well formed on the cuspid.

I shall continue the use of the utrical until the festoons about the cuspid are sufficiently hardened to successfully withstand the contact of food, lips, and brush, and shall on a future occasion to have the pleasure to report the final result of my treatment of the case.

MONTHLY REPORT OF CASES TREATED AT THE
DENTAL HOSPITAL OF LONDON,

FROM MAY 1ST TO MAY 31ST, 1881.

Extractions	{ Children under 14	574
	{ Adults	738
	{ Under Nitrous Oxide	341
Gold Stoppings		231
White Foil ditto		22
Plastic ditto		473
Irregularities of the Teeth treated mechanically		90
Miscellaneous Cases		357
Advice Cases		192

Total..... 3018

H. G. BLACKMORE,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE
NATIONAL DENTAL HOSPITAL,

FROM MAY 1ST TO MAY 31ST, 1881.

Number of Patients attended	1349	
Extractions {	Children under 14.....	362
	Adults.....	552
	Under Nitrous Oxide	61
Gold Stoppings	89	
Sheets of Gold used, independent of Pellets.....	95	
Other Stoppings	512	
Advice and Scaling	97	
Irregularities of the Teeth	55	
Miscellaneous.....	98	

Total operations 1826

R. DESMOND ASHBY,
House Surgeon.

British Journal of Dental Science.

LONDON, JUNE 15, 1881.

WE have received lately several inquiries respecting the prospects and probable arrangements of the Dental Section of the International Medical Congress. In answer to these we are able to state, on the highest authority, that though the settlement of matters of detail is not yet sufficiently advanced to permit of the issue of a definite programme of business, yet the success of the Section is perfectly assured. Indeed, we should have supposed that the names of the sectional officers would have sufficed to remove all anxiety on this account. As regards attendance, we understand that a very considerable number of practitioners of our specialty, both from across the Channel and from the other side of the Atlantic, have signified their intention of being present, whilst the equally necessary food for discussion is fully provided for by the fact that six or eight papers of first importance, besides numerous shorter communications, have been definitively accepted by the Committee. We hope very shortly to be able to give more detailed information on this point; meanwhile, our readers will be interested to learn that, at a meeting of the Sub-committee held at Mr. E. Saunder's on the 13th inst., the proposal of the Council of the Odontological Society to hold a *Conversazione* on the evening of August 2nd, to which all those who propose attending the meetings of the Section will be invited, was gladly accepted. This will afford an excellent opportunity for introductions, and for the final discussion and arrangement of details of business. It was also decided that a series

of clinical, or as we should prefer to call them, *practical*, demonstrations should be given at the Dental Hospital, Leicester Square, in which Drs. Marshall Webb, Bonvill, and others will take parts.

We publish in this number of the Journal an abstract of the programme of the general arrangements for the Congress ; the programme itself will be issued to subscribers generally in about a week or ten days' time. The business to be transacted has increased considerably beyond what was at first expected, so that some difficulty has been met with in comprising it within the time originally fixed ; the fact that the meeting of the British Medical Association at Ryde has been arranged to follow immediately after the Congress rendering a prolongation of the latter almost impossible.

Besides the strictly professional business of the Congress, members will have the opportunity of visiting a great many places of interest which are not usually thrown open to sightseers ; amongst these will be the Mint, Bank of England, and Newgate Prison, the Engine Works of Messrs. Maudsley and of Messrs. Penn, Messrs. Siemen's Telegraph Works, and Messrs. Barclay and Perkin's Brewery, besides many of the most noteworthy private mansions and picture galleries in the Metropolis. On the whole, we feel assured that the International Medical Congress of 1881 will compare favorably with any of its predecessors, and that Londoners will have no reason to be ashamed of the preparations which have been made for the intellectual and social entertainment of their visitors.

Literary Notices and Selections.

ON DEFORMITIES OF THE MOUTH.*

THE first edition of this comprehensive treatise was published in 1868, and although nothing had appeared on the mechanical treatment of deformities of the mouth since Snell wrote his well known work in 1828, the book was only a pamphlet of a hundred pages. Our principal authority, James Snell, had previously given an account of all that was known and practised up to his day, and to him is due the credit of taking an accurate model of the mouth, and using india rubber in the construction of the velum. Mr. Sercombe in 1857 improved upon Snell's methods, and again, in 1864, Dr. Norman Kingsley introduced an instrument altogether new in form, and by preparing the elastic rubber vela in metallic moulds, he proved that duplicates could be taken with the greatest ease at any time. Still, the author of the present work had to acknowledge in his preface to the first edition that the subject had not been exhausted, and that it deserved more time and attention than it had yet received. Indeed the introduction of elastic rubber in the construction of obturators here described, entirely changed all former modes of procedure. We are not surprised, therefore, to learn that a second edition was demanded in 1870, in which was embodied the experience of Dr. Morell Mackenzie and Mr. Christopher Heath, and now, eleven years afterwards, a third edition is produced, which has not only been carefully revised, but a considerable portion of it has been rewritten, and many chapters of additional matter introduced.

A book of this description can hardly make itself thoroughly understood without illustrations, and in this respect the edition before us is particularly rich. We have no less than eighty-three woodcuts and ninety-three carefully executed drawings on stone. Each plate has an explanation so lucidly written that every branch of the subject (fissured palate and alveolus) is made thoroughly intelligible. Not only is congenital cleft palate in all its varied forms freely illustrated, but syphilitic affections of the palate, whether inherited or acquired, are also ably described and exhibited.

* 'Deformities of the Mouth, Congenital and Acquired; with their Mechanical Treatment.' By Oakley Coles. Third Edition. London: J. & A. Churchill, New Burlington Street. 1881.

Mr. Oakley Coles has not felt satisfied to reproduce his work with additions and extra illustrations only, he has entirely rewritten his first chapters on the anatomy of the normal palate, and has given some interesting measurements of the width and height of the palatal arch in thirty-four skulls of European origin and thirty-two adult skulls of mixed races. His chapter on the development of the palate and surrounding parts is also very comprehensive, and with the anatomy and physiology of cleft palate, may be fairly said to include the history of these distressing malformations. But it is perhaps in the attempt to classify deformities of the upper jaw that Mr. Coles shows more particularly the closeness of his investigation. This formed the subject of a paper which was read before the Odontological Society in February, 1880, and in it the author substituted certain words known in cranial morphology for the ordinary terms hitherto used somewhat vaguely. He also instituted a series of measurements, taking a triangle as the best geometrical figure, to arrive at the breadth and length of the dental arch. All these early chapters merit careful perusal, particularly the one that treats of palate and cranium.

New matter of an instructive and interesting kind has also been introduced on defects of the palate arising from syphilis, a number of cases are recorded with their treatment, and directions given for the construction of palate plates with all the means that can be adopted for restoring the patient's appearance. Another new chapter on gunshot wounds and their treatment is well worth careful perusal, for, as most Dentists and surgeons know, plastic surgery can do a great deal to remedy these defects and to restore the part removed. "With the means we have at our command at the present day," says this author, "there is no case that is not capable of improvement by judicious mechanical treatment, and at the same time the more permanent work of the surgeon may be rendered certain of success to a greater extent."

To sum up the best mode of treating congenital cleft palate, Mr. Coles very properly says: "I am fully prepared to admit that, provided the conditions of the parts be suitable, the surgical operation being done once for all is superior to any mechanical contrivance that must necessarily be renewed from time to time. The question therefore turns on what is a suitable condition of the parts for operation. They may be briefly stated:

1. A sufficient substance on each side of the cleft to admit of freely paring the edges.

2. An amount of the mobility that will admit of the free borders easily approximating.

"3. A sufficient length of the central portion of the cleft palate when united to produce perfect closure between the naso-pharyngeal cavities."—PHOSPHOR.

PLASTICS AND PLASTIC FILLING.*

A CAREFUL study of this work may be safely recommended to all operators. It must, however, be borne in mind that although a large proportion of the work is the result of direct experiment, there is also much which in any future editions would be well either left out or corrected, notably many of the recipes and processes are evidently only either crude guesswork or given at second hand from incompetent authorities. As these errors are in many cases seriously important it will be well to note them for correction.

On page 41, he states that every gold and platina alloy in the market at present is composed of more than 50 per cent. of tin, this is certainly not the case with either of my own, nor is it so with some others which have come under my own notice. If Dr. Flagg refers only to American made alloys he may be correct, but evidently he does not do so.

On page 44 he states that silver *expands* on cooling. This, from the context is evidently not a printer's error, but it is an error nevertheless.

On the same page platinum is stated to increase the length of time during which an amalgam remains workable. It may do so in some alloys which I have never yet met with. In all I have tested its action is precisely the reverse; and anything like a large proportion—say 15 to 20 per cent.—makes some silver tin alloys so quick in setting as to be practically unworkable. In the list of metals used in alloys for dental amalgams, bismuth is omitted, evidently with intention. It is largely used, and its value in very plastic amalgams is well known.

On page 57 he gives, at second hand, two different assays of my amalgam, which he says are amusing. They certainly are so, as they were never taken from any alloy I make; they have no approach to correctness either in the metals used or the proportion; the percentages are not correct, and nearly half the metals present are not even mentioned. Such

* 'Plastics and Plastic Filling, as pertaining to the Filling of all Cavities of Decay in Teeth below medium in structure, and to difficult and inaccessible Cavities in Teeth of all grades of structure.' By J. Foster Flagg, D.D.S., Professor of Dental Pathology and Therapeutics in the Philadelphia Dental College. Illustrated. Trübner & Co. London, 1881.

an alloy as given would be in every respect totally different to any I ever made, or any I should care to have my name connected with.

Repeatedly through the book may be found the statement that freshly cut amalgam is not so good as old, and yet on page 72 he states that he is unable to obtain the mirror-like appearance shown in some plugs he has seen made by me in glass tubes. It may interest him to know that the splendid adaptation to the sides of the cavity can only be obtained by clean, freshly cut alloy. Working out his theory he probably spoilt the plugs by long exposure, and was then surprised that they were spoilt.

On page 155 is given a process for making oxychloride of zinc cement. This has been so long disused, condemned as one of the most worthless of all the processes, that it is surprising to find it once more exhumed from forgotten records. If this is the process by which the oxychlorides were made, on which his criticisms were written, there is no need for surprise at his statements that oxychlorides were worthless; the one he refers to undoubtedly is.*

On page 199 it is stated that it is most conclusively demonstrated by the tube test that rubbing amalgam against the walls of cavities is a very unsatisfactory and incomplete method of inserting amalgam. It may interest Dr. Flagg to know that the perfect mirror-like plugs which he is unable to copy were made by the process he so decidedly condemns. The fact is that each operator has his own system of working by which he can obtain certain results more easily than by any other. That Dr. Flagg should fail in one method of working is no reason why all others should fail likewise.

Allowing for these errors, which, after all do not amount to very much, the book is one of distinct value. The errors are principally where manufacturing processes are concerned; these he has either guessed at or they have been given to him incorrectly, because the makers did not care to have their exact processes published for the use of their opponents.

The principal value in Dr. Flagg's work is in the thorough care which he insists on in working plastic fillings provided

* The process given for the preparation of oxysulphate of zinc is that used for a poor imitation made and sold in America. It is a totally distinct and different thing to oxysulphate of zinc as first introduced and made by myself under the name of artificial dentine, and the results obtained in the mouth with the two forms are seriously different. The process of making the form I supply is well known to many, but I do not care to publish it to enable dealers to make further imitations. It is sufficient to know that many would be in a position to at once produce precisely the same material in case I failed to do so.

good results are to be obtained. In laying down lines showing in what directions this care is to be exercised, he has done a good work which entitles him to the thanks of the whole profession.

No doubt the statements made in many points will be revised as the personal differences in the working results of different operators become known, still he will remain the first who has fairly and independently taken up the matter without visible personal interest.

It is pretty well known that the production of filling materials on a small scale is practically a failure, so far as exact results are concerned; the time expended in refining and testing small quantities is far too great to put the attainment of exact results within reach of the Dentist who attempts to make his own small supplies, and the apparatus required would in many cases cost more than the total value of all the filling materials any Dentist would be likely to use in a dozen years.

For those who desire to follow up Dr. Flagg's work I will, as soon as present engagements permit, make with every possible care precise copies of the materials he refers to and recommends from his own experience; printing at the same time such extracts from his work as are necessary as a guide to use.—THOS. FLETCHER.

DEATH FROM SWALLOWING ARTIFICIAL TEETH.

A CASE which lately came before Mr. H. C. Yates, the coroner for Sandbach, is rightly stigmatised by the local journals as "extraordinary," albeit that the facts are of a very ordinary kind. On the night of April 9th a Mrs. Froggatt, aged eighty-two, having been undressed by her servant in the presence of the servant's little daughter, bolted her bedroom door on the inside and retired to bed. The next morning she did not ring as usual, and when called failed to answer. The servant, in the presence of her daughter and another woman, then broke in a panel of the door, drew back the bolt, entered the room, and found Mrs. Froggatt dead. The medical man who was called in testified, in effect, that deceased had probably been convulsed at the moment of death, and searching for the cause he had found a set of twelve false teeth, which she had forgotten to remove when she went to bed, jammed into the lower part of the pharynx and obstructing the larynx. The medical

opinion was that death had resulted from suffocation due to the impaction of the false teeth. Notwithstanding this a post-mortem examination was ordered, and a medical gentleman other than the one who was called to the deceased was requested to make it. The post mortem afforded evidence of death from suffocation, and an analysis of the contents of the stomach showed that it did not contain any poison. Not a particle of the evidence given at the inquest was contradicted, and to all ordinary minds the cause of death must have seemed certain. The coroner's jury, however, "drest in a little brief authority," thought fit to return the following verdict after a deliberation of half an hour's duration:—"That the deceased died from suffocation, but that there has not been sufficient evidence brought before them to show how such suffocation was caused. The jury wish to add that they consider Dr. Davies was guilty of an error in judgment in having taken the teeth from the deceased's throat without proper authority!"—*Lancet*.

SWALLOWING OF FALSE TEETH AND PLATE.—DEATH FROM HÆMATEMESIS.

By J. H. GARDINER, M.B., L.R.C.P. Lond., &c., of London, Ontario.

ON January 20th, 1881, Mrs. B—, æt. 33, was supping some soup, when a plate with two false teeth attached became loosened and slipped down her throat. Violent retching followed, lasting for several hours, but was finally allayed, whether from the stomach becoming accustomed to the foreign body, or from bismuth freely administered, I do not know. A dull, heavy pain was complained of over epigastrium and in the back over region of stomach, which remained until death. The retching at times recurred, but only slightly. A difficulty in swallowing was complained of, even liquids causing pain. I ordered her to remain in bed, and to take bread and milk, corn starch, or any fluid or mucilaginous food. My instructions were not followed, but the patient persisted in keeping about and doing her usual "housework." Just one week after the accident happened the patient was seized with violent hæmatemesis, accompanied with purging.

Dr. Charles Moore, senr., saw the case with me, and we agreed as to the cause of the hæmorrhage, viz. the severing

of one of the arteries of the stomach. Ergotine was used hypodermically in eight-grain doses every three hours. All efforts of treatment by the mouth only aggravated the symptoms. The vomiting soon ceased, but the purging continued until the end; and seventeen hours after the appearance of the first urgent symptoms the patient died. In the absence of an autopsy, I can only say that I think the accident was caused by a sharp angle of the plate, which was broken previously, being caught in a fold of the stomach near the cardiac orifice, and this had severed one of the arteries of the stomach. Now, in a similar case, where one is certain that the foreign body has become impacted, what would be the best line of treatment? The wait-and-see-what-will-turn-up style resulted in my patient turning under. Could not some instrument be devised to remove, or, at least, to break up, a foreign body in this situation?—*Canadian Journal of Medical Science.*

SWALLOWING THE TONGUE.

DR. INGALS, of Chicago, reported to the Laryngological Association the case of a hysterical patient who suffered with suffocative attacks from involuntarily swallowing the tongue. During all this time the patient was in an exquisitely nervous condition, which was aggravated by the fear of impending death, caused by the suffocative attacks and the great prostration which followed them.

He added, "I at first supposed these attacks due to spasm of the glottis, caused by some of the ejected matter from the stomach having found its way into the larynx; but upon careful inquiry I learned that there was no sensation of constriction or of any foreign substance in the larynx, and no cough or stridulous breathing.

"The patient complained of a sense of extreme thickness of the tongue at its base, and inability to control its movements; these sensations were usually present some time before the suffocative attack. During the attack her whole throat seemed filled, and breathing was instantly and completely checked. She stated that the tongue seemed much farther back in the mouth than it was possible to get it voluntarily, and that the tip was pressed up against the palate and seemed curled over on the surface of the tongue.

"After various frantic efforts the tongue would resume its natural position in the mouth, and respiration would go on

without impediment. For several hours after the attack, especially when lying on the back, the patient would complain of symptoms which indicated its recurrence.

"I gave the patient a pair of forceps, and directed the friends, in case of another attack, to seize the tongue and draw it forward, unless the patient, by passing her finger over it, could accomplish the same result.

"The day following the third attack, another occurred, which was at once relieved by the patient passing her finger over the tongue and drawing it forward. This was the last of these attacks; the patient gradually improved in all her symptoms, and is now in a fair way for recovery.

"Since witnessing this case I have heard of another in this city, through non-professional sources, in which the life of a man who "swallowed his tongue" was saved by the bystanders, who promptly drew out the organ.

"An abstract of the recent literature upon this subject may be found in the 'American Journal of Obstetrics' for January, 1878.

"As a surgical phenomenon, following division of the frenum, this accident is mentioned in Fr. S. Meissner's 'Encyclopædia of the Medical Sciences' and in the 'Memoires de l'Academie des Sciences,' 1742; and Dr. Veh, of Moscow, states that he has frequently heard of swallowing the tip of the tongue after division of the frenum, which is very commonly practised in Russia. Dr. C. Hennig, of Leipzig, reports two fatal cases which he heard of in 1876, which terminated attacks of pertussis. Dr. R. Seydelder reports a case of suffocation supposed to have been caused by this accident. Drs. Roger and Simon report similar accidents which occurred while the individuals were sleeping, and Ziemssen mentions the possibility of such attacks in infants; but, so far as I can learn, my patient is the first lady on record who has ever attempted to swallow her tongue."—*American Archives of Laryngology*.

EXTREME SENSIBILITY TO THE INFLUENCE OF CHOLOROFORM.

By Dr. C. T. STOCKWELL, Springfield, Mass.

A LADY, about thirty-five years of age, called on me recently to have a badly decalcified second left inferior molar tooth filled. The pulp was exposed on the buccal surface.

The patient had suffered much from this and another tooth that had just previously been removed; and also had been caring for a sick neighbour. She was considerably exhausted and worn out, manifesting a good deal of nervous excitability. I capped the pulp and filled the cavity; but, to my surprise, an unusual amount of pain followed, to relieve which I took down my bottle of chloroform, and, moistening my fingers, passed them down the side of the face two or three times. But as the pain did not entirely subside, I suggested that she take a few inhalations. She accordingly took the bottle and inhaled directly from it, moderately twice—it is barely possible that she did so three times—when I noticed a wavering. I seized the bottle and she immediately sank back into the chair in a completely unconscious state. Grasping her wrist, I failed to discover the least indication of the heart's action. Respiration ceased. The face assumed, almost instantly, a slightly flushed, but intensely asphyxiated expression; the eyes stared wide open and the pupils were very largely dilated. To say that, to my mind at least, the affairs of this world had suddenly assumed a most earnest aspect, is putting it mildly. There being a physician's office at the next door on the same floor, I stepped to it, but he was out. Not daring to waste another second in summoning help, I proceeded alone. My efforts soon resulted in a slight gasp, when about a thousand tons appeared to roll off my shoulders. With the aid of nitrite of amyl the heart's action soon became comparatively normal, and she gradually recovered a regular respiration and complete consciousness.

Now, in my judgment, this was a case that possessed a peculiar idiosyncrasy, or extreme sensibility to the influence of chloroform; and thus there was a complete paralyzation of the sympathetic system of nerves produced by the two or three inhalations of the chloroform. In other words, she was dead, and nothing but the most immediate and active efforts to resuscitate saved her from the coroner. The case has several self-evident morals.—*Johnston's Dental Miscel.*

CAPPING EXPOSED PULPS.

By Dr. M. A. WEBB, Marengo, Ill.

A GREAT deal has been said about the operation of capping exposed pulps, which seems very simple, and yet a great

many members of the profession are not successful in it. The pulp may be in the first stages of disease, or inflammation may have extended to the peridental membrane, and from thence to ulceration, and finally to suppuration. But to be successful it must be taken in its first stages of irritation, that is, when it first gives pain to the patient from outside influences, such as heat and cold, &c. At this stage we may be pretty sure of success, as all that will be essential will be something to prevent irritation from outside influences, which can be accomplished by the application of a non-conductor between the pulp and the filling. After this cap is placed gently, but at the same time thoroughly, into the bottom of the cavity, you can place whichever kind of filling you believe, in your judgment, will be the most suitable to the purpose. But if the tooth has been neglected, so that simple inflammation or even periostitis has set in, then the tooth needs preliminary treatment. For ordinary cases I urge attention to the diet and bowels, and then give local and internal treatment. Local treatment for periostitis is the application of aconite rubbed around the seat of the inflammation, and also belladonna sometimes in connection with aconite. I treat internally with belladonna and aconite also, in small doses, and with common cases I hardly ever have a failure.

After successfully combating and reducing the inflammation, so that the tooth is not sore to bite, nor to light taps with an instrument, the final operation may be proceeded with. Of course it is understood that the cavity must be temporarily filled while this preliminary treatment is in progress—say with gutta percha—which is non-conducting, easily inserted, and easily removed.

In capping the pulp permanently after removing all diseased dentine possible without encroaching upon the pulp, mix together some pure creasote and white oxide of zinc to a thick paste, having the cavity dry. Then with the spatula introduce this paste to the bottom of the cavity, pressing it home with a piece of spunk and pliers, the spunk at the same time absorbing the excess of creasote. If the tooth is aching the effect is instantaneous, and the pain does not return. After the introduction of the paste you must place upon it something that will harden sufficiently in a few moments, so that you can introduce your permanent filling.

If you use amalgam, a solution of gutta percha and chloroform will be sufficient, but where you use gold, some quick-setting cement will be necessary to effectually prevent pressure upon the pulp, and this completes the operation. In nine cases out of ten this will be absolutely successful,

and thus we can save many of the teeth we now extract. I would ask those who seem unsuccessful in their treatment to try this for once.—*Johnston's Dental Miscellany.*

ON THE TRANSPLANTATION OF TEETH.

By Dr. TH. DAVID.

(From the 'Gazette Odontologique.')

(Concluded from page 525.)

CASE 3.—Mons. B—, æt. 24, assistant at the hospitals. His upper right lateral was badly decayed, and was affected with chronic periostitis at the apex of the root, with abundant discharge; several attempts had been made to stop it, but the greater part of the crown had now disappeared, the remainder being quite black. I offered to extract the tooth and to replace it by a healthy tooth obtained from a student, and this was agreed to.

The theological student was a native of Martinique, aged 23; he presented a strikingly ugly irregularity of the front teeth, most marked in the situation of the right upper canine. This tooth was placed so much outside the line of the other teeth as to cause the lip to project considerably, whilst the lower lateral was in front of its upper antagonist, which was inclined backwards. To correct this state of things I proposed to extract the upper canine and the lower lateral on the right side; the neighbouring teeth would then soon come together and the dental arch would resume its proper shape. And I availed myself of the lower lateral to replace the carious upper lateral of my other patient.

On October 4th, 1879, I extracted the two teeth; one was perfectly healthy, the root of the other was bare only at the apex. So slight an alteration in the root induced me to think that the alveolus must be in a fairly healthy state, and led me to hope for the immediate union of the transplanted tooth. I implanted the lower lateral in the alveolus of the upper tooth, after cutting off a small portion of the apex, and applied a retaining splint similar to that described in Case 1.

That evening a violent attack of inflammation set in, accompanied by intense pain. So, fearing intra-alveolar suppuration, I next day drilled through the bone into the base of the alveolus, so as to establish a fistula. Some fluid

escaped and the inflammation subsided, but did not altogether disappear for ten days. During the whole of this time the tooth appeared to be quite loose, and to be only kept in position by the splint. There was also a discharge from the mouth of the alveolus behind the tooth. I kept the fistula open by frequent probing.

After the tenth day the tooth began to get firmer, so that on the seventeenth day I was able to remove the splint. I found then that the root was attached to the alveolus only by its anterior face. It, however, gradually became firmer, and, although never so firm as the others, it became securely fixed and caused no inconvenience in eating; it was also a little too long. The fistula kept open, though scarcely noticeable, giving vent to a scanty mucous discharge.

In April, 1880, six months after the operation, things were in much the same state. The fistula was not closed, but it caused no inconvenience whatever. The tooth, although movable, was yet so firmly attached that I did not venture to extract it in order to correct its excessive length. The patient expressed himself quite satisfied with the result of the operation, and only hoped that it would last. I attribute the failure in the consolidation in this case to the bone mischief which existed, and which was the cause of the acute suppuration in the alveolus.

CASE 4.—Madame L—, aged thirty-five, had lost the crown of the right upper lateral from caries. She came and asked me to extract the root and to graft in its place the corresponding tooth of her maid, whose right upper lateral was twisted on its axis, and placed almost entirely behind the line of the other teeth. She therefore readily consented to part with it.

On Nov. 1st, 1879, in the presence of my friend Dr. Monard of Aix-les-Bains, I extracted the two teeth. The root of the carious tooth showed no sign of disease. The other incisor, which I had believed to be healthy, showed a small lateral carious cavity, which I filled. It was easily planted in its new alveolus, but I was obliged to take it out again in order to remove a tubercle on its posterior face, which interfered with the closure of the jaws. After keeping it out for a quarter of an hour, I settled it properly in its place. In order to keep it in place, I applied a splint similar to those which I had used for the preceding cases.

Next day the patient had slept well and been free from pain; both splint and tooth were in good position and the gums looked healthy.

On the next day (Nov. 3rd) Madame L— came to see me without her splint; the tooth was perfectly firm.

On the 10th the patient complained of a little tenderness about the neck of the tooth, where the free edge of the gum had red and swollen. I cauterised this part of the gum freely.

On the 12th, the gingivitis had quite subsided. The tooth was firm and quiet.

On April 29th, 1880, I had the following account of this patient from Dr. Redon:—"The tooth gives no pain or inconvenience of any sort; it is quite firm, so that it is impossible to distinguish any difference in mobility between this tooth and the others. The patient uses this tooth just as she does the others, and says she cannot in any way distinguish between them. It is a complete success."

* * It will be noticed that Dr. David counts the first case twice over, as he has a perfect right to do; but whether he is quite justified in counting Case 3 as a success is perhaps open to doubt. A writer in the 'Gazette Odontologique' gives it as his opinion that in all these cases carefully pivotted crowns, after proper treatment of the roots, would have succeeded equally well and would have given the patient less pain.—ED. B. J. D. S.

THE OLD, OLD STORY.

AN interesting and instructive discussion took place at the meeting of the Odontological Society, on April 4th, between Mr. Stocken and Mr. S. J. Hutchinson, on the advisability and propriety of Dental surgeons undertaking the constitutional treatment of their patients. The former gentleman delivered an essay "On the Value of certain Remedies in the Constitutional Treatment of Inflammatory Conditions of the Vascular Tooth Structures, and of Neuralgia arising therefrom," in the course of which he remarked that he was of opinion that Dental Surgeons did not generally give sufficient attention to the constitutional treatment of the cases under their care. Mr. S. J. Hutchinson very properly differed from this opinion, and maintained that it was a mistake for a Dental Surgeon to undertake constitutional treatment, and that if this appeared necessary he should communicate with the patient's ordinary medical attendant and leave the details of the treatment to him. Any other course, he thought,

would inevitably lead to strained relations between Dental and medical practitioners, especially in country places.

That Dental licentiates, as soon as the legality of their licence was firmly established, would begin by degrees to assume the functions of medical practitioners, no one of any experience ever for one moment doubted, and therefore the discussion referred to above will cause but little surprise to those who have taken any interest in Dental legislation. We presume that these gentlemen referred to Dental Surgeons who possessed no medical or surgical qualification, and not to registered practitioners practising Dentistry, and must express our admiration of the manly and straightforward manner in which Mr. Hutchinson denounced a system which we cannot help thinking would, if established, be fraught with danger and likely to lead to the greatest abuse. Most of us will agree with the president that it is difficult to define the exact border-line between medical and Dental practice, but few will agree with him that so long as there is any prospect of saving a tooth, the Dental Surgeon is justified in using any means at his disposal, whether constitutional or local, with this object. The fact is, that Dental Surgery ought never to have been separated from the main branch, of which it should be an integral part, of equal importance with ophthalmic or aural surgery; and the president went far to admit this when he said that he thought every Dental practitioner should have a thorough knowledge of the value of constitutional remedies in Dental practice, and in order to promote this he would be glad to see a chair of pharmacology attached to every Dental school. It is difficult to perceive any real difference between granting a Dental licence to practise Dental Surgery, and granting an obstetric, ophthalmic, or aural licence to practise obstetric, ophthalmic, or aural surgery; and inasmuch as we should strongly condemn the establishment of any fresh special licences, so we feel bound to condemn the already existing Dental licence, as the outcome of the most short-sighted and mischievous legislation that it has been our lot to witness. No fault is found with the Dental licence, any more than with the obstetric licence or the diploma in state health, so long as they are only granted as additional qualifications; but we do strongly object to them being granted as licences to practise; and surely the course of events has justified this objection on our part. If gentlemen possessing the licence in Dentistry only are at liberty to prescribe for the constitutional maladies of their patients, then there is no use whatever in taking the trouble to obtain a licence in medicine. It was for this very reason that the obstetric licence, which some time since was

a registrable qualification, was deprived of its licensing power and rendered merely an additional qualification. Let us hope that the words of the president of the Odontological Society of Great Britain will bear fruit, and that every Dental practitioner may in the future have a thorough knowledge of the value of constitutional remedies in Dental practice. The only way to accomplish this end is to make the Dental licence of the future an additional qualification only. It is a remarkable thing that Dental licentiates themselves do not insist upon this, instead of allowing themselves to be entirely separated from, and outside the pale of the profession of medicine, of which they *ought* to be a branch.

At present Dentistry in this country is divided into two great sections—viz. those registered medical practitioners who elect to practise as Dental specialists, and whose names are to be found on the British Medical Register ; and those Dental licentiates, non-qualified Dentists, herbalist Dentists, bone-setter Dentists, barber-pharmacist Dentists, &c., whose names are to be found mixed up in a promiscuous manner on the Dental Register. These two sections in reality have no connection whatever with each other, the one being a medical specialty, followed by registered medical practitioners mostly possessing the additional special qualification of Licentiate in Dental Surgery ; the other being a calling to itself, outside the pale of the profession, and followed by gentlemen who hold no registrable medical qualification, but are licentiates in Dentistry only, or by others who hold no registrable medical or Dental qualification, but are licensed herbalists, chemists, druggists, bone-setters, patent-medicine vendors, barbers, &c. That those of the first class should treat the constitutional maladies of their patients one can understand. But for those of the second class to attempt constitutional treatment is most certainly highly improper, and likely to often lead to the most serious consequences. We have, as stated before, no intention of offering a slight to the licence in Dental Surgery, which is an excellent diploma as far as it goes ; but we hold that it should be employed strictly for the purpose for which it was intended—viz. as a licence for the practice of Dentistry.—*Specialist.*

THE EARLY EXPERIMENTS WITH NITROUS OXIDE.

IN view of his many and interesting experiments with nitrous oxide, we are surprised that Sir Humphrey Davy did not develop the subject of anæsthesia, in all its practical utility,

just as we are surprised that James Watt did not invent the railroad as soon as he had completed the steam engine. Davy's failure to complete the discovery is doubtless due to the very small quantity of gas used in his experiments, and to the fact that the breath was reinhaled with the gas. Partial suffocation of the patient was a necessary accompaniment of such experiments. A remark of Regnault in this direction, throws some light on the inefficiency of early experiments with this agent. He is of much later date than Davy, and he cautions experimenters against the suffocating methods of early chemists. He says the sack to contain the gas for inhaling should be *large, and not smaller than the bladder of an ox*. And into this he expected the breath to be exhaled and reinhaled, again and again, and yet such botch-work was called experiments with nitrous oxide; and, in the revival of nitrous oxide, after the long disuse of it, following the death of Wells, Mr. Colton, and the Dental profession as well, showed but little, if any, more common sense. Rubber bags had become common, and hence bladders were not reintroduced. But think of small gas-bags, of three or four gallons each, laid on the laps of refined, delicate ladies, tubes inserted into their mouths, their lips compressed against them, their nostrils closed by screw-clamps, and the poor victims left to die at once of apnœa, or reinhale, over and over again, the filthiest and deadliest of all their own excretions, to say nothing of what was already in the bags, left by those who had preceded them as victims. At the meeting of the Mississippi Valley Association for 1864, one member, a leading man in the profession then and now, said, "A four-gallon gas-bag would be usually found sufficient for three inhalations." He was understood that such a bag, full of gas, would prove sufficient for three operations on as many patients. And further, he said, "He had administered the gas to three different patients, from the same bag, without renewing." The writer of this objected to such a course at the time, but the statement did not seem to make a sensation. Another member remarked, "By using the gas-bag too often, without replenishing, he had seen suffocation result before anæsthesia." And, not far from the same date, Mr. Colton expressed the opinion that reinhaling from a gas-bag was preferable to the use of a valved inhaler, as the carbonic acid of the breath appeared to be necessary to complete anæsthesia. All the older members of our profession will remember that this filthy method was in common use. The writer of this cannot yet think of the inside of a bag so used without suffering from nausea.—*Ohio State Journal of Dental Science*.

RESUSCITATION FROM CHLOROFORM SYNCOPE BY INVERSION OF THE BODY.

THE following case seems to be worthy of record as furnishing another conclusive instance of the value of the postural treatment in cases of chloroform syncope. On October 31st, 1880, I removed a uterine polypus from Mrs. M—. She was placed deeply under the influence of chloroform by her regular attendant, and took it well. A much larger one shortly afterwards protruded, which I attempted to remove on March 6th. She was again placed under the influence of chloroform by the same gentleman. His galvanic apparatus was out of order, but from our former experience we anticipated no danger. I had just passed a portion of my hand into the vagina, and was about to apply the *écraseur*, when the pulse suddenly stopped. Respiration ceased almost simultaneously. The lower jaw dropped, the tongue lay between the teeth, and she became more deadly pale than she had previously been. Percussion of the heart, artificial respiration by Sylvester's method, cold affusion, and the subcutaneous injection of ether were successively tried, but without avail. Three or four minutes elapsed while I was thus occupied, and no trace of circulation returned. I then seized her by the shoulders and placed her head upon the floor, while my friend and his assistant elevated her legs. In about a minute, or possibly less, I noticed pulsation in the neck, and replaced her on the bed. There was now distinct cardiac action, but respiration remained in abeyance, and the pulsation grew gradually more feeble. I re-inverted her, and retained her in that position for about two minutes. There was now strong palpitation, and in a short time a few gasps followed, just as in infant resuscitation. There were also several distinct clonic convulsions of the right side. The respiration gradually became natural, and after about five minutes of quiet sleep she awoke, of course quite unconscious of the whole occurrence. We thought it advisable to defer the operation, and she has had no bad symptoms since.

How far the interference with the genital organs was provocative of the syncope I am unable to say. Experience tends to show that operations on the testicle are not thus provocative, if the chloroform narcosis be deep enough; and midwifery experience is against such a presumption.

The injection of ether under the circumstances is evidently open to discussion, on the point as to whether its powerful stimulating properties might not be counterbalanced by the addition to the narcosis. One cannot discuss such questions

very carefully during such an emergency. I would gladly have the opinion of your readers. The patient was certainly, to all appearance, dead for three or four minutes, and the inversion of the body certainly saved her. If I were ever in such a condition, I should wish that, after the position of the tongue had been ascertained to be favorable, and a strong shock or two of galvanism to my phrenic nerves had been tried, I should immediately be inverted.—J. THORBURN, M.D., Manchester.—*Brit. Med. Journ.*

SALICYLIC ACID.

BUT few therapeutic agents meet as many wants in Dental practice as does this acid. It is not highly soluble or it would doubtless be used oftener than it is. It is so mild in its local action, in comparison with carbolic acid, that the Dentist fails to have the confidence in it that he has in the latter; yet in some respects it is quite as active and efficient. It dissolves in very many saline solutions much more freely than in water, and on this account it readily dissolves in the fluids of the mouth when used as a local application. It very readily and freely cauterises aphthous ulcers on the mucous membrane of the mouth, and that without the severe pain following the use of carbolic acid. When in perfect solution it is quite as good a disinfectant as carbolic acid. To effect this solution we have been in the habit of combining it with small portions of carbonate of soda and white sugar. Thus combined we have a most excellent preparation for spongy gums, with fetid or ammoniacal breaths. It may be used with the brush and gargled, or, better, applied to the throat with an atomiser.

The 'Louisville News,' some time ago, gave a formula, which, the editor claims, gives a perfect solution, "the best solution of salicylic acid he has ever used." For some purposes, it is so important that it be in solution that this formula should be adopted and kept by all Dental practitioners. The preparation may be made thus:—Take of salicylic acid 640 grains; citrate of potash 960 grains; glycerine 3 fluid ounces; simple elixir sufficient to make a pint. Dissolve the citrate in the glycerine by the aid of a gentle heat, then stir in the acid, continuing the heat till it is completely dissolved. When cool add the simple elixir

till the whole measures one pint, and strain. This solution contains five grains of salicylic acid to each fluid drachm, and it can be mixed in any proportions with water without precipitation.

We have given the formula for this solution in a shape we thought better for our readers, who may not be familiar with the art of prescription writing, while it will answer equally as well for others. Any of our readers can have it prepared at a drug store. If less than a pint is wanted the figures can be changed to any extent, while the proportions are carefully kept. When used in the cavity of the antrum, this solution will ordinarily bear dilution. As a disinfectant in hollow teeth it may be applied in full strength. But we need not enumerate. When a perfectly reliable solution of the acid is thus obtained our readers can each think of hundreds of cases where it will prove both useful and convenient.—*Ohio State Journal of Dental Science.*

Dental News and Critical Reports.

ODONTO-CHIRURGICAL SOCIETY.

MARCH 11TH, 1881.

WALTER CAMPBELL, Esq., L.D.S., President, in the Chair.

THE discussion on Mr. Watson's paper "On Secondary Hard Formation in Pulp Cavities; their Physiology and Pathological Signification,"* was opened by Dr. SMITH, who said that he had been much pleased with the exhaustive and practical way in which the subject had been dealt with. The matter was one of much importance in Dental Surgery. There seemed to be no doubt of the power of the pulp to produce hard tissue; and if it could do so, and interpose a protective barrier of the kind between itself and the inroad of caries, it was very desirable that the conservation instead of the destruction of the pulp should be our object in stopping a tooth. He had many specimens of the consolidation of the pulp going on when protected by a superjacent stopping—several of these sections being made while Mr. Biggs was his assistant, and who was now present, and Dr. S. he had no

* See page 202.

doubt would remember their being cut. Mr. Watson had alluded to the dentine of repair being an effort of nature to limit diseased action. This was also a most interesting point for consideration, as it occurred not in the pulp only, but also in the dentine itself, as shown by Mr. Tomes so long ago as in 1845 or 1846, when lecturing in Middlesex Hospital; while Mr. Nasmyth, of this city, had before, or about that time, shown the same thing to occur; and Professor Goodsir followed him by showing it to occur in ordinary bone, in the same manner that the tissues were consolidated round an abscess forming in the soft parts. It became a question, however, whether such solidification was solely protective in its nature, or whether, by cutting off the vital supply of an isolated portion of a tooth, it did not lead to its death and subsequent decomposition—whether, in short, it was a cause as well as an effect of what is called caries. Caries, Dr. S. said, was a very indefinite term, involving many separate processes; and the late Mr. Liston's definition of it was not a bad one, when he held it to be the result of the vital powers of bone being so low as not to be able to repair, but high enough to prevent the throwing off of dead substance. There was another circumstance indicated in Mr. Watson's paper, namely, the unmistakable vitality of the fully developed tooth, and the vital nature of its diseases. This seemed manifested from its earliest existence, when the dental germ, the mere inflection from the oral mucous membrane of its associated structures, began the formation and building up of the complicated and highly sensitive tooth; and at its later stages of existence, and when attacked by disease, the development of new tissue, whatever modifications of this tissue might, according to the integrity or powers of the odontoblasts, be produced, still showed that a vital action was going on as well in the separative efforts made as it was fairly presumable was at work in producing the phenomena of the disease itself. Dr. Smith considered the thanks of the society due to Mr. Watson for his communication.

Mr. MACLEOD said he rather felt inclined to be less hopeful of the beneficial effects resulting from secondary deposition in our attempts to preserve the vitality of the major portion of the pulp, to say nothing of the difficulty of artificially inducing this conservative action. It was said that, when the pulp was irritated, nature threw out a protective covering; but even under the most favorable form of irritation—viz., attrition—uniform, and therefore healthy, calcification was by no means the invariable result. No later than last week he had seen a mouth in which the

teeth were much worn on their cutting and grinding surfaces. He had occasion to open into several of the pulp cavities, and not a vestige of secondary deposition was to be found. This was not an isolated case in his experience. In those specimens brought forward by Mr. Watson the calcification was generally irregular, taking the form of excrescences from the primary dentine or of nodules embedded in the pulp, the result being not preservation, but death. If, then, the results were so unsatisfactory when the agent of irritation was so gentle and gradual, would it be wise to expect better results when the agent was more sudden in its application and more irritating in its quality, as any capping, however bland, must be?

The PRESIDENT said that there could be no difference of opinion, he thought, as to the importance of Mr. Watson's paper. The difficulty in the meantime, considering their present knowledge, was to arrive at useful and accurate conclusions, so as to enable them to find out whether there were nodules in the pulp cavities. He had no doubt that further research in this line would result in useful knowledge to them all if they could ascertain correctly, or with a certain measure of correctness, whether there were secondary dentine formations in the shape of nodules or excrescences in the pulp chamber. In that way they would know better how to treat a tooth. He did not think that very much could be done to save the pulp of a tooth which had been the cause of severe neuralgia. He had tried on several such occasions to conserve the pulp, but he did not remember having succeeded. In his view there was no doubt that those secondary dentine formations had a great deal to do with the severe neuralgia from which patients so frequently suffered. A few days ago he had a patient who had suffered extreme pain from neuralgia on the right side. He had been to Edinburgh and consulted some professor, and after consulting several local medical men, he was sent by one of them to him (the President) about a fortnight ago. He extracted two of his teeth, and he took the liberty of sending them to their young and zealous friend, Mr. Watson, for examination. The patient was considerably relieved after the extraction of those two teeth, but in three or four days after, the pain began again on the same side. The patient called his attention to another tooth which he thought had something to do with the neuralgia, and he found on examination that it was also carious—not much, but quite enough to produce extreme suffering. He extracted that tooth also, and sent it to Mr. Watson. He had no doubt that the patient had been relieved by the removal of the tooth.

Mr. WATSON exhibited the teeth, and stated that he had found an excrescence growing from the pulp cavity.

The PRESIDENT said a few days ago he came across an interesting case in connection with the subject of Mr. Watson's paper. A lady patient called, complaining of a very bad smell, coming, she thought, from some of her teeth. On examination he found the palatine surface of the second right upper molar had a hole drilled as far in as the pulp cavity, and, on inserting a probe, found it had the usual smell of decomposed pulp. The tooth had been filled, and the pulp chamber drilled into, for the escape of gas from dead pulp. The only thing to be done was to take out the filling and clean out the three canals in roots and refill cavity. When he had the filling out, and was preparing the roots for dressing, he was astonished to find two nodules of secondary dentine quite loose in pulp cavity. The patient told him that the Dental Surgeon who had filled the tooth took considerable pains in doing so, and had used fine instruments with hooked ends, such as she saw him using to extract the nerve. He had no doubt the difficulty the Dental Surgeon had experienced in treating the tooth was the two dentinal nodules. There was one part of the paper in which he took special interest, and which he would have liked to have heard more freely discussed—namely, the preservation of the dental pulp. In 1874 he read a paper on this subject. He then said, when speaking of the means adopted for stimulating the pulp to form secondary dentine, and his experience since went to confirm this—"I am inclined to think that protection of the pulp by a smooth, non-irritating substance is all that is needed in the formation of secondary dentine." He knew nothing better for protecting the pulp than a small piece of thick court plaster with the gummy surface laid next the floor of the cavity, previous to filling.

Mr. MATTHEWS asked if the President thought it was necessary to resort to the extreme treatment of extraction in the case to which he had referred?

The PRESIDENT.—I think so.

Mr. MATTHEWS asked whether the same object might not have been attained by the destruction of the pulp by arsenic?

The PRESIDENT said it might have been.

Mr. MATTHEWS asked whether it would not be advantageous to try the destruction of the pulp?

The PRESIDENT said that in many cases it would be advantageous; but in the cases referred to the teeth were of no value, having no antagonising teeth. The doctor sent the person to have his teeth taken out, and he (the patient).

wanted them taken out; but the destroying of the pulp would have the same effect. As he had said, the teeth were valueless for masticating.

Mr. MATTHEWS said that was satisfactory.

Thanks were then awarded to Mr. Watson.

Mr. WATSON said he had to thank the Society for the kind manner in which they had received his paper. In referring to some of Dr. Smith's remarks, he said that it was only in cases of chronic inflammation that they had a hardening of the bone; and if it was a chronic disease more time was given for a deposition. Mr. Macleod had said that he often found teeth worn away by abrasion where there was no ossification of the pulp. Now, in some of those cases, on account of the irritation, the pulp might be destroyed very easily from the abrasion, and therefore they could have no deposition. He would like to know if the pulp was alive in the teeth Mr. Macleod examined?

Mr. MACLEOD.—No.

Mr. WATSON said he thought they could easily account for cases of that kind.

Mr. MACLEOD said he thought it was almost invariably the case that deposition did not follow abrasion in persons of a sangui-bilious temperament.

Mr. WATSON said, with regard to what Mr. Matthews had said about the destruction of the pulp, that the best plan would be to destroy the pulp and to clear out the canals. He had himself done it pretty often. Not long ago he found great difficulty in destroying the pulp, and he had to try it five or six times before it was done. It was extremely difficult to destroy the pulp on account of the nodules, as the pulp might be a considerable way beyond them.

Mr. WILSON then read a paper "On the Sectorial Teeth, and their Modifications in Terrestrial Carnivora," which will be found at page 562 of this issue.

The PRESIDENT said he was sure they would heartily thank Mr. Wilson for his interesting paper. (Applause.) In reading it over it would have an additional interest to them from having heard it now read.

The SECRETARY then read the following contribution by Walter Whitehouse, L.D.S.Ed., London, on "The endowment of Research in Dentistry":—I beg leave to introduce to your notice a subject for discussion which I would gladly see lead to some practical result. Endowment of research led the scientific world at one time to hope and believe they had found the means of solving all the questions in science then pressing for a solution. Experience has taught us that endowment will not produce brains, nor give a man that

"natural industry" without which perhaps nothing has been produced, and there is probably less of the accident about so-called accidental discoveries than the world believes. At the same time, the various learned societies are presumably satisfied with the results obtained from the sums already annually expended in help and encouragement of work and experiment in the particular matters they wish investigated. There can be no reproach made that Dentistry is not making as rapid progress as other arts and professions; but there is one thing we are backward in, and that is analytical and experimental chemistry. I refer specially and particularly to the little work being done to find a plastic filling that is not an amalgam which will rival amalgam and gold for durability. One never hears a paper giving any account of research into this subject. A report issued by a committee of the Odontological Society on the white fillings then in use, although very valuable, interesting, and meritorious to the gentlemen engaged in the experiments, was lamentably weak in the analysis. The success already obtained by Messrs. Fletcher, Weston, and Poulson may reasonably allow one to hope that experiment, exhaustively carried out by able experimental chemists, might lead to important results. One finds sufficient distinctive features in the productions of these gentlemen to show already some range of substances which nearly answer the purpose required. The endowment of research in the particular direction of endeavouring to find a suitable plastic filling, not an amalgam, would be, considering the importance of the subject, a very commendable act on the part of the profession. I have not the honour to be a Fellow of the Chemical Society; but with some acquaintance with the work it performs, I am persuaded, were a prize of £50 placed at the disposal of the Chemical Society for the best research into this subject, it would lead many gentlemen engaged the whole of their past life in chemical research, as a labour of love, to investigate the subject, not for the reward merely, but the honour. I would point out, the profession would receive in return for any expenditure many interesting and instructive papers. The conditions necessary for success are so readily described and understood—no shrinkage, expansion, or alteration of shape in hardening, and to withstand the action of dilute acids and alkalis. I am perfectly aware the stoppings we have answer the above tests in the laboratory, although too frequently fail to wear in the mouth; but a suitable stopping discovered differing in base from these would be worthy of careful trial in the mouth. Samples of the stoppings in use could be supplied, to pre-

vent waste of labour in rediscovering those already in use. I venture to submit to this society the proposition that the profession be invited to subscribe to the authorities of the Chemical Society a sum of £50 annually for three years for the encouragement of research into this subject.

The PRESIDENT exhibited two curious cases of supernumerary teeth.

Mr. WATSON—Here is a model taken in plaster by Mr. Macleod, while under the two microscopes are prepared and mounted sections of an epuloid tumour removed by Dr. Smith from a patient at the hospital. It was attached to the anterior portion of the superior maxilla, and extended from the left lateral incisor close up to the canine on the opposite side. In form it was somewhat oval, lying along the alveolar border, and having a pretty broad base of attachment—size, $\frac{3}{4}$ inch in length, $\frac{9}{16}$ of inch in breadth, convex externally and concave internally, the concavity having been produced by the inferior incisor teeth biting against it. From the sections under the microscopes, as well as from this drawing of its histological structure which I pass round, you will observe its character to be that of a fibro-plastic tumour. Commencing at its basal origin of attachment, and running through the whole of the central portion of the tumour, is an irregular arrangement of bony spicules surrounded by fibrous tissue, the contiguous tissues consisting of round and oval cells, alternating with fibrous tissue and regularly arranged myeloid cells (which were brought out by the use of acetic acid), the latter predominating, thus showing, as in this case, the close relation some of the varieties of epulis have to sarcoma.

The PRESIDENT then delivered the retiring address, as follows :—Gentlemen,—As the business of the session is now over, and my presidential reign has come to an end, perhaps you will permit me, before resigning the chair, to offer a few parting words. In the first place, I sincerely thank you for having elected and re-elected me to be your President, an honour which I have esteemed most highly. To the members of Council, for their forbearance and ready support at all our meetings, I tender my most cordial thanks; and more especially would I thank the Hon. Secretaries for their zeal in carrying on the work of the Society. I assure you the work of the Secretary is more important and laborious than one outside the Council can readily imagine, and the prosperity of the Society depends in no small measure on his ability and zeal. It is only two years since we became possessed of a home which we could call our own. Since then we have made considerable progress in various ways. Our members

have increased by one third, and our funds are in a correspondingly prosperous condition, as shown by the Treasurer's report. We have also acquired a Library and Museum, which, although in a forward condition, are still in need of further contributions. I readily avail myself of this opportunity to remind members that our excellent Librarian and Curator, Mr. Watson, will be most thankful to receive the smallest donation. I would urge every member, both ordinary and honorary, to look over his shelves and his cabinet, and see whether he cannot find some book or object of interest which he might spare to the Society. The Dental School and this Society are intimately connected. They have one home, as they have one object—the diffusion of correct principles, as the result of research and practice in Dental science, so that donations to the Museum and Library are used for educational purposes. For this the oldest volume and the newest are alike valuable.

Gentlemen, we are now by law recognised as a profession, but we need not shut our eyes to the fact that it will take some time ere we be recognised as such by the general public. The more we practise a kindly professional feeling amongst ourselves the sooner will the public be led to recognise our true standing. I know of nothing more likely to cultivate a professional spirit amongst Dental Surgeons than the frequent intercourse which such societies as ours affords its members. Associated action, in Dental as in other learned societies, is undoubtedly a power in developing a high toned professional spirit. It fosters and encourages that zeal to find out the working of nature in health and in disease, and seeks to spread that knowledge amongst its members for the benefit of mankind. This intercourse begets also a spirit of charity and forbearance in judging of the operations of others who differ from ourselves in their method of practice. I consider it a matter of regret that the Medical Council, in their recent action, have retained on the Dental Register names which, according to the ordinary understanding of the term *bonâ fide*, should have been erased; but to prevent the entrance into our Society of such, who have neither the knowledge nor the spirit of professional men, we have the old fashioned and powerful black ball. We may, however, console ourselves with the knowledge that this unfortunate condition of things is daily working its own cure, and that now no name can be added to the register unless the candidate has acquired the necessary fitness. It took twenty years, at least, of steady, persevering work, by a few leading men, to prepare material for that wall which the legislature three years ago consolidated by the Dental Act. We may be

sure, gentlemen, that this protective measure may be strengthened, but will never be broken down. I am forcibly reminded of the truth of a remark made to me by our esteemed and acknowledged head, Mr. Tomes, as far back as 1862, when, speaking of American Dental Colleges, that with us institutions take root slowly but surely. Patience and love of work for its own sake is a characteristic of the English, and not less so of the Scotch. The lecturers at our Dental School, educated as all must now be, and the facilities for work such as modern science can render, have a wide and highly interesting field for research. The able and instructive paper read at our last meeting, and also the paper read to-day (and I do not think that I am going out of my way in referring to the able address delivered at the opening of the session), as specimens of what we may expect from them in the future, and from the rising Dentists, which I am sure our Society will take care to encourage. Our papers, casual communications, and discussions thereon, have all been profitable and interesting. I would here repeat what I said on a former occasion, that from our conversational meetings we derive great, if not the greatest, benefit; and I consider the Society has acted wisely in having at least one of these in each session. I trust, as our members have increased so largely, that we may soon be in a position to have a reporter present at all our meetings, that our absent members may derive all the benefit possible from our discussions being fully reported.

There is one other subject, and a sad one, to which I would refer, viz. the loss we have sustained by the death of Dr. Roberts, who at one time filled this chair. The deep interest he always took in the Society's doings since its formation made him well known to us all; and I am sure, while giving expression to my own feelings, I also express the sentiments of every member. We esteemed him highly—indeed, we loved him. His genial, happy countenance will never be effaced from our memory. Let us hope that we may meet him again under a happier and better condition of things. May he rest in peace, and awake to a joyful resurrection.

And now, gentlemen, I conclude, and with pleasure resign the chair to Dr. Smith—one who, I know, will guide us with great ability and energy; although he is a young member, he is not a young man, and his wide range of knowledge and his great experience will be at our service while he presides over our meetings. I cannot express to him and to you how much pleasure it affords me personally to know that he is to fill the chair which I now resign. (Applause.)

Dr. SMITH then took the chair amidst applause. He said he did not need to say that he felt very much the high honour that had been conferred upon him in electing him President of the Society. He only trusted that the office-bearers, who had served under the past Presidents so faithfully, would bear with his shortcomings. He knew that those who had occupied the chair before him had had a longer experience of the Society than himself, and he had no doubt whatever that they would be ready to guide him. He was glad to see the very valuable papers, judging from what he had heard, that were brought before the Society; and he had no doubt that when a number of volumes of the Society's proceedings were collected, they would include some of the most important contributions in existence in connection with Dental science. He had to thank them for the honour that they had conferred upon him, and he would endeavour to do the Society all the credit he possibly could. (Applause).

Mr. HARRISON, Sheffield, proposed a cordial vote of thanks to the retiring office-bearers.

Mr. CAMPBELL briefly acknowledged the compliment, and the proceedings terminated.

Miscellanea.

INTERNATIONAL MEDICAL CONGRESS.

A LIST of upwards of one thousand intending members has already been prepared, and 130 medical men, including many leaders of the profession, both in London and the provinces, have paid their membership subscriptions and inscribed their names on the register of the Congress. Professor Maurice Raynaud, the giver of the French address, has chosen for his subject, "Le Scepticisme en Médecine au temps passé et au temps présent," and from his well-known ability in this direction we may confidently expect a great literary treat. A large number of papers from the various sections continue to flow in from home and abroad, and are undergoing translation preparatory to being published at the time of the Congress. The Committee have received a grant of £26 5s. to the general fund from the Royal College of Surgeons in Edinburgh, this raising the total sum received from the various corporate bodies to £292 15s. Very great effort has been made to induce the railway

companies to reduce their fares to gentlemen proposing to attend, but without success, although our Foreign Minister, Earl Granville addressed the Ambassadors at the various European Courts on the subject. Notable exceptions have been made in our favour by the South-Eastern and the London, Chatham, and Dover Companies, and by the Chemin de Fer du Nord of France, who have most generously granted permission for visitors to travel from Paris to London and back for a single fare. The Norwegian passenger steamers from Christiania to England will carry our Scandinavian *confrères* the double journey for a single fare.

The following official programme of the general arrangements will, no doubt, be read with interest by many of our readers who are intending to take part in the proceedings.

An Informal Reception will take place at the Royal College of Physicians, Pall Mall East, on Tuesday afternoon, Aug. 2nd, from 3 p.m. to 6 p.m., at which the Executive and Reception Committees will meet the Members of the Congress.

The Opening Meeting of the Congress will be held in St. James's Great Hall, on Wednesday, Aug. 3rd, at 11 a.m. Entrances in Regent Street and Piccadilly.

The other General Meetings will be held in the Theatre of the University of London. Entrance in Burlington Gardens. The Sections will meet in the places assigned to them. Section XII (Diseases of the Teeth) will be quartered in the rooms of the Linnæan Society, at Burlington House.

The Offices of the Reception Committee are in the College of Physicians, Pall Mall East, at the North-west corner of Trafalgar Square.

The Reception Committee will meet daily during the week at 3 p.m. in the Censor's Room of the College of Physicians.

The Office of the Reception Committee at the College of Physicians will be open for the Registration of Members on and after Monday, July 18th. Members are requested to call as soon as possible, after their arrival in London, to enter their names and addresses in the Register, when they will be supplied with Programmes of Business and Tickets for Membership, Excursions and Entertainments. Every possible information will be given as to the prices and situation of convenient Hotels and Lodgings.

Members wishing to take part in any of the Excursions, or to visit any of the private or public places of interest open on the occasion, must enter their names in the proper book, at the College of Physicians, at the earliest opportunity, in order that the necessary arrangements may be made.

Members of the Congress will be admitted free, on presentation of their Tickets of Membership, to view the International Medical and Sanitary Exhibition at South Kensington, at which will be exhibited the various Materials and Apparatus employed in the prevention, detection, cure, and alleviation of disease.

DAILY PROGRAMME.

TUESDAY, AUGUST 2ND.

10 a.m. to 6 p.m.—Registration of Members and issue of Tickets at the Office of the Reception Committee in the Royal College of Physicians, Pall Mall East.

3 to 6 p.m.—Reception of the Members of the Congress by the Executive and Reception Committees at the Royal College of Physicians.

WEDNESDAY, AUGUST 3RD.

8 a.m. to 6 p.m.—Registration of Members and Issue of Tickets at the Royal College of Physicians.

11 a.m.—First General Meeting, St. James's Great Hall.

Address of Welcome by the Chairman of the Executive Committee.
 Secretary-General's Report.
 Election of Officers, and Constitution of the Congress.
 Election of Honorary Presidents of the Congress.
 Election of Honorary Presidents of the Sections.
 Inaugural Address by the President of the Congress.

3 p.m.—Meeting of the Sections.

Constitution of the Sections.

And other business.

9 p.m.—Conversazione at South Kensington Museum (entrance Exhibition Road), given by the English Members of the Congress to the Foreign Members.

THURSDAY, AUGUST 4TH.

10 a.m. to 1 p.m.—Sectional Meetings.

1.30 to 3.30 p.m.—Visits to Hospitals.

Guy's Hospital.

London Hospital.

St. George's Hospital.

St. Mary's Hospital.

St. Thomas's Hospital.

Westminster Hospital.

The Medical Officers and Lecturers will be prepared to receive such Members of the Congress as may desire to visit these Hospitals and to inspect their Schools and Museums.

2 to 3.30 p.m.—Additional Meeting Time for the Sections.

4 to 5.30 p.m.—Second General Meeting, Theatre of the University of London. Address by Prof. Maurice Raynaud, Paris, "Le Scepticisme en Médecine, au temps passé et au temps présent."

6.30 p.m.—Banquet given to a certain number of the Members of the Congress by the Lord Mayor of London, at the Mansion House.

FRIDAY, AUGUST 5TH.

10 a.m. to 1 p.m.—Sectional Meetings.

1.30—3.30 p.m.—Visits to Hospitals.

Bethlem Hospital.

Charing Cross Hospital.

King's College Hospital.

Middlesex Hospital.

St. Bartholomew's Hospital.

University College Hospital.

The Medical Officers and Lecturers will be prepared to receive such Members of the Congress as may desire to visit these Hospitals and to inspect their Schools and Museums.

2—2.30 p.m.—Additional Meeting Time for the Sections.

4—5.30 p.m.—Third General Meeting, Theatre of the University of London. Address by Dr. Billings, Washington, U.S., on "Our Medical Literature."

9 p.m.—Conversazione at the Royal College of Surgeons.

SATURDAY, AUGUST 6TH.

10 a.m. to 1 p.m.—Sectional Meetings.

4—7 p.m.—Reception of a certain number of the Members at Kew Gardens by Sir J. D. Hooker.

4—7 p.m.—A Garden Party will be given by Mr. and Mrs. Spencer Wells at Golder's Hill, Hampstead.

6.30 p.m.—The United Hospitals Club will entertain a party of the Members of the Congress at Dinner at the "Star and Garter," Richmond Hill.

SUNDAY, AUGUST 7TH.

10 a.m.—A *Service* will be held in Westminster Abbey; Sermon by the Very Rev. Dean Stanley, D.D., F.R.S.

3.15 p.m.—A *Service* will be held in St. Paul's Cathedral; Sermon by the Rev. Canon Liddon, D.D., D.C.L.

2 p.m.—The Royal Botanic Society's Gardens, and the Gardens of the Zoological Society, in the Regent's Park, will be open free to Members on this, and on every day of the week, on presentation of their Tickets.

The Royal Gardens at Kew may be visited on Sunday from 9 a.m. till sunset, and Hampton Court Palace and Gardens from 2 p.m. till sunset.

MONDAY, AUGUST 8TH.

10 a.m. to 1 p.m.—Sectional Meetings.

2—3.30 p.m.—Additional Meeting Time for Sections.

4—5.30 p.m.—Fourth General Meeting, Theatre of the University or London. Address by Prof. Volkmann, Halle.

6.30 p.m.—Dinner given to a certain number of the Foreign Members of the Congress by the Worshipful Master and Wardens of the Society of Apothecaries in their Hall in Blackfriars.

9 p.m.—Soiree in the Albert Hall and the International Medical and Sanitary Exhibition, South Kensington.

TUESDAY, AUGUST 9TH.

10 a.m. to 1 p.m.—Sectional Meetings.

2—3 p.m.—Fifth General Meeting, Theatre of the University of London. Address by Prof. Huxley, F.R.S., D.C.L., London, "The Connexion of the Biological Sciences with Medicine."

3 p.m.—Concluding Meeting of the Congress.

INFORMAL DINNER AT THE CRYSTAL PALACE.

After the Concluding Meeting the Members, accompanied by their Friends, will proceed to Victoria Station, for High Level Station (London, Chatham, and Dover Railway), where special trains will be in waiting at 4 o'clock to convey them to the Crystal Palace. After a visit to the Palace and Grounds an Informal Dinner will take place in the Concert Room about 7 o'clock. At dusk the Fountains will play during a display of Fireworks, which may be viewed by Members of the Congress from the Queen's Corridor.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

SIR,—In reply to the remarks made on my criticism of Mr. Mayr's paper on the "Chemical and Physical Effects of Fillings on the Teeth," it must be remembered that some people still believe all matter printed in a scientific or technical journal to be trustworthy and reliable. For these people the statements made by Mr. Mayr would be misleading.

It is unfortunately too common for members, especially of American societies, to get up and talk for the sake of talking or with the object of getting their names advertised. A careful examination of many of the papers read before American Dental societies will show this point clearly. I refer more especially to American societies because this evil is more apparent in America than perhaps in any other country. Ideas are exalted into facts, and statements are made which, as in Dr. Mayr's case, are not facts, and are certainly neither the result of experiment nor of knowledge.

That Mr. Mayr is not a Dentist is no objection whatever. Many, if not most, of the valuable inventions at present in use are the ideas of outsiders, who bring new brains, untrammelled by routine and habit, to bear on what is wanted. Their results are, however, valuable only when correct.

I am, &c.,

THOS. FLETCHER.

Warrington.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Permit me to correct an error that occurs in Dr. Vanderpant's paper in your issue of the 1st of May, relative to the molar I filled at the clinic at S. S. White's Dental Depôt in New York, on the 5th of April, correct in every respect, excepting the weight of gold inserted, which should be stated two and a half books, or one hundred and fifty grains, instead of a half ounce of gold, all which was easily inserted with the electro-magnetic mallet in four hours. Judging by conversation with Dr. Vanderpant that gold filling by means of the electro-magnetic mallet is an interesting subject to your English readers, I would be willing to take part in a clinical demonstration, should the opportunity occur when in London, which I purpose being in August.

Your correspondent (Dr. Vanderpant) is perfectly justified in promising a hearty welcome from the profession this side of the Atlantic to any English Dentist, especially one who has for his object the advancement of our common cause.

I am, &c.,

MARSHALL H. WEBB.

Lancaster, Pa., U.S.A.;

May 21st, 1881.

ANSWERS TO CORRESPONDENTS.

- "M. G."—We cannot undertake to answer questions of law; much would depend on the wording of the indenture; it is a matter for a solicitor.
- "VECTIS."—The advertisement is most objectionable, especially as coming from an M.R.C.S., but the practice is not actually illegal, and can only be discountenanced by indirect means, which are, however, often effectual.
- "W. B. M." and others.—We have answered your questions to the best of our ability, and will do our best to inform you of all further arrangements as soon as settled. Apply to the Hon. Secretary-General, at 13, Harley Street, Cavendish Square.

Communications have been received from Messrs. Bowman Macleod (Edinburgh), Chas. Tomes (London), the President of the Odontological Society, W. H. Atkinson (New York), Thos. Fletcher (Warrington), Marshall Webb (Lancaster, Pennsylvania, U.S.A.), "M. G.," "Vectis," &c.

BOOKS AND PAPERS RECEIVED.

Clarke, on 'Horses' Teeth.' 'Gazette Odontologique.' 'L'Odontologia.' 'Missouri Dental Journal.' 'Lancet.' 'Medical Times and Gazette.' 'British Medical Journal.' 'Pharmaceutical Journal.' 'Le Progrès Dentaire.' 'Isle of Wight Chronicle.' &c. &c.

British Journal of Dental Science.

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VOL. XXIV.

CONSERVATIVE DENTISTRY—A NEW MINERAL CROWN.

By FRANK COMER, Torquay.

WITHOUT wishing to detract from the value of artificial teeth properly mounted upon celluloid, vulcanite, gold or any other base or combination of bases, the writer of this article is one of those who believe firmly in conservative Dentistry or the art of saving and restoring to usefulness and beauty *the natural teeth*, especially where by so doing the inconvenience of wearing a *plate* may be entirely avoided.

With this end in view he has for years advocated and practised the restoration of badly-decayed teeth by contour fillings of gold or amalgam, in many cases building up "entire crowns; and also by pivoting or otherwise attaching mineral crowns to the natural roots."

Beginning with the old plan of attaching a mineral crown to the natural stump with a wooden pivot, various operations of this kind have, from time to time, been described in text-books and Dental journals, each method usually having advantages not possessed by its predecessor. It remained, however, for Dr. W. G. Bonwill, of Philadelphia, to introduce a method which, from its comparative simplicity, can be successfully employed by almost any Dentist, and from its durability is likely to supersede all other operations of its kind in general practice. Its great advantage is in the shape and style of the crown, which the firm of S. S. White, of Philadelphia, manufacture from patterns furnished by Dr. Bonwill. The *modus operandi* was very clearly described in an article from the pen of Dr. Bonwill, which appeared in the 'Dental Cosmos' a few months ago, and with which, no doubt, most Dentists are familiar.

When in Philadelphia last October I had the pleasure of a short, but interesting conversation, with Dr. Bonwill, chiefly upon the subject of mineral crowns, and explained to him a method of my own of building a porcelain crown to a natural root by means of gold foil and a gold wire or

screw with the aid of his electro-magnetic mallet. "Yes," said he, "it is, no doubt, a beautiful and durable operation; but how many Dentists would undertake it? and how many patients could stand the fatigue or afford the necessary expense? My plan furnishes 'the greatest good for the greatest number' both of patients and operators.'" I could not but acknowledge the force of his argument as well as the unselfishness which prompted it; and thereupon resolved to take a leaf out of his book. "The greatest good of the greatest number" is a worthy aspiration. But are Dr. Bonwill's method and crown the *ne plus ultra*, or can they be improved upon, not merely for my own comfort and convenience and the benefit of my individual patients, but for all Dentists and all those unfortunate enough to require Dental aid?

In the May number of 'Johnston's Dental Miscellany' appears the following, which is well worth reproduction, especially as it bears upon the subject of this paper:

"If the soundness of opinion on the question of Dentistry that exists in the minds of the general public of different nations could be estimated, there is no doubt that the American nation would display the largest quantity. They realise more than the English, German or French, that the natural teeth are invaluable possessions, and that it is not the sole function of the Dentist to tear a patient's organs of mastication from the quivering flesh. But no one knows better than the country Dentist how very indifferent even Americans are as to the value of their teeth. No one realises more than he does that if the Dentist would do his duty he has a great task before him of educating the people up to a better appreciation of their teeth. We cannot but rejoice at the many signs that we see of the determination of members of the profession to educate the public in this matter. There is, after all, something to be sought for in life, besides the acquirement of a given quantity of dollars. There is far more real satisfaction in the feeling that comes to a man of having imparted some enlightenment to minds that were hitherto dark than in amassing riches. At the same time it must be remembered that the Dentist loses nothing pecuniarily by giving good advice and enlightenment to his patient."

Now, although Dr. Bonwill's operation will answer admirably for patients like his own, in *American* CITIES, who will religiously carry out the instructions of their Dentist, and so ensure success in operations of this kind, it will not answer in cases in which as a rule patients cannot be relied upon to avoid displacing the crown or loosening the amalgam

before the latter has firmly set. Another objection is that, at present, there is not sufficient variety in the shapes and sizes of the Bonwill crowns, the largest of them being in many cases too small at the *neck* to cover completely the face of the root, thereby leaving a shoulder of dentine exposed to deleterious influences.

A third objection is that the crowns are not as strong as they might be; and a fourth that the high price charged for them (one shilling each) prevents many Dentists, no doubt, from keeping a sufficiently large stock from which to select the exact size, shape, and shade required for each case that they might be called upon to treat.

In presenting a new method and a new crown to the profession, these objections should therefore be overcome; and I will commence with the last and end with the first.

Figure 1 represents one of my central incisor crowns, and 2, a section of the same, showing the form and arrangement of the cavities therein; and as this style of crown is as well adapted for vulcanite or celluloid plate work as the ordinary plain *pin* teeth there is no reason why, if made in large quantities, they should not be even less expensive than the latter. Messrs. Lemale and Co., whose porcelain teeth are justly esteemed for their density and great strength, having kindly undertaken the manufacture of my crowns, the question of strength is assured.

FIG. 1.



FIG. 2.



The patterns furnished being prepared from *natural teeth* of various sizes and shapes, and *due allowance being made by the manufacturers for SHRINKAGE of the mineral crowns IN BAKING*, the second objection to the Bonwill crowns will be met by this improvement. My *method* of attaching the crowns is upon an entirely different principle from that of the Bonwill and completely overcomes the liability to displacement. It is as follows:—Being first provided with a stock of crowns, platina or silver wire of No. 16 guage (with a sharp thread cut upon it), and small silver nuts to fit the thread, prepare the root by cutting down with a file or stump corundum wheel even with or slightly under the margin of the gum; enlarge the nerve canal with a No. 6 (S. S. White) round bur drill to a depth of about three eighths of an inch, making a considerable undercut, as shown in Fig. 3; seal the foramen at the apex of the root with gold. Select a suitable crown to match the adjacent teeth and fit it to the

FIG. 3.



root, care being taken to select one which will require the least possible grinding upon its lingual surface to secure its articulation with the opposite teeth. Cut off a piece of wire of sufficient length (say five eighths of an inch) to project through the cavity in the crown far enough to admit of the easy adjustment of the nut. With a fine saw or separating file cut a slit in one end of the screw about one sixteenth of an inch deep and bend the parts asunder. Mix sufficient amalgam; dry out the cavity thoroughly; insert a small quantity of amalgam; put in the widened end of the screw, tapping it well up to its place; then pack more amalgam

FIG. 4.

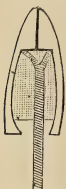


FIG. 5.



FIG. 6.



carefully and thoroughly around the screw (the electro-magnetic or an engine mallet answers admirably for this purpose), but not quite filling the cavity. We now have the screw secured in its place in the stump and presenting the appearance shown in Fig. 4.

This is all that is to be done till next day, except, for safety, we wind a piece of cotton wool, saturated with sandarac varnish, around the screw to protect and steady it. At the next sitting we find a strong screw firmly secured to which to attach our crown, which is done by preparing a little more amalgam, filling the rest of the cavity, and covering the face of the root, placing amalgam in the cavity in the neck of the crown, which is then passed over the screw and pressed with a rotary motion firmly up to its place.

Pack a little more amalgam around the screw in the outer cavity of the crown; put on the silver nut (Fig. 5), and, with a small wrench or screwdriver (Fig. 6) made for the purpose, screw the nut as tightly home as possible.

The rest of the cavity is now filled and the nut and end of the screw covered with amalgam, or with gold if the patient prefers it. Any excess of amalgam which may have been pressed out between the crown and the root must now be removed with a small flat burnisher and the operation is complete.

In bicusps having two roots my plan is to cut a slit in the wire about one fourth or five sixteenths of an inch deep, bend the parts asunder till they form a Y, and build the upper parts into the roots.

In upper first molars I use two screws, one in the lingual and the other in the anterior buccal roots.

Should the patient by carelessness displace or loosen the screw before the amalgam has hardened the evil can be reme-

died before the crown is attached ; and this I claim is a very valuable point in favour of my method.

Messrs Lemale and Co., however, intend to offer still further advantages by making these new crowns of various sizes, shapes, and shades, and offering them to the profession at *one half* the price charged for the Bonwill crowns ; and as they will be equally well, or even better, adapted for celluloid and vulcanite work than pin teeth, it will be necessary for Dentists to keep only a good stock of the new crowns to meet the requirements of ordinary practice, either for pivoting natural roots or making vulcanite or celluloid plates.

ON SYPHILITIC AND CANCEROUS ULCERATION OF THE TONGUE.*

By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical Surgery.

ULCERATION of the tongue may be simple, syphilitic, or cancerous. The *simple ulcer* is often caused by the irritation of a sharp tooth, or may be due to dyspepsia. It is small and superficial, and, unless due to local irritation, is generally multiple, and often found beneath the tongue. It is painful, and interferes with the movements of the tongue, but yields readily to treatment. The removal of the sharp corner of a decayed tooth with a file, and the subsequent application of a stick of nitrate of silver to the ulcer, are generally sufficient to effect a cure when the cause is local. When it is constitutional, a brisk purge, with the local use of the glycerine of tannin, or any astringent gargle, will be sufficient treatment.

Syphilitic ulceration may appear during the secondary stage of the disorder along the edges of the tongue, and will almost always be found to have a corresponding white patch on the mucous membrane of the cheek. These ulcers have no induration at their bases, but, when healed, leave an irregular fissured border, which is very characteristic. A later form of ulceration is found in fissures of the dorsum, which leave irregular furrows in healing.

The deep syphilitic ulcer is due to the breaking down of a gumma, and it is this kind which is apt to be confounded with cancerous ulcerations. The ulcer is irregular, with

* A Clinical Lecture delivered at University College Hospital on May 16th, 1881.

everted edges, and presents a yellowish slough at its base, in which a varying amount of induration can be detected. It is often in the central portion of the tongue, whereas epithelioma is more commonly at the sides; and careful investigation will show that a lump has been noticed in the organ before the ulceration commenced, and that the induration diminishes as the ulcer grows; whereas in cancer the induration follows the ulcer, and steadily increases in extent. Still, it must be admitted that cases occur in which it is impossible to give an accurate diagnosis without having recourse to the tentative administration of iodide of potassium, and that, even then, it is not always possible to be sure that epithelioma has not begun in an old tertiary sore.

In the treatment of syphilitic ulceration of the tongue, regard must be had to the stage of syphilis in which it occurs, and the previous treatment undergone. In the superficial ulceration, mercury in the form of bichloride or iodide is much more effectual than the iodides alone, and should be had recourse to, unless the patient's health has been shaken by previous courses of the drug. In the tertiary form of ulcerated gumma, iodide of potassium will certainly effect a rapid cure if the ulceration be recent, provided it be given in sufficient doses, beginning with not less than ten grains thrice daily, and being increased to thirty-grain doses, if smaller ones be not effectual. In all forms of syphilitic ulceration, the local application of mercury is useful; but it must be applied, not in the form of gargles, which are used and spat out at once, but as a lotion, to be held in the mouth for five minutes, so as to "pickle" the tongue. A lotion containing a quarter of a grain of bichloride of mercury to an ounce of water, with a little glycerine or honey, is a very good form, and the strength may be increased after a time with advantage. Care must, of course, be taken that none of the fluid is swallowed.

Cancerous ulceration is of the epitheliomatous type, unless it should supervene in the later stage of scirrhus, which is of rare occurrence in the tongue. Attacking the side of the tongue, in patients over forty years of age, the onset of the disease is so insidious as to attract little attention, the ulcer being often attributed (and perhaps correctly as to origin) to the irritation of a tooth. When well-developed, the ulcer is usually oval in shape, with sharply cut edges, and a marked induration beneath it when the parts are grasped by the finger and thumb. The pain of cancerous ulceration is a well-marked and early symptom, being lancinating and

acute, and shooting up into the ear. The irritation causes a great flow of saliva, and the tongue is moved with difficulty, at first because of the pain produced, and later on because it is bound down by the infiltration of all the structures. The submaxillary lymphatic glands become involved early in the disease, being at first swollen and tender, and later on being apt to suppurate and break down, causing large openings beneath the jaw.

Should the disease spread towards the base of the tongue, death is occasionally due to hæmorrhage from one of the lingual arteries; but, in cases where the anterior part of the tongue is involved, it not infrequently becomes adherent to the incisor portion of the lower jaw, and ultimately infiltrates that bone. In these cases the patient has generally a longer life of great misery, and dies at length, exhausted by pain and discharges from numerous open sores about the chin and angles of the jaw.

In the treatment of epithelioma of the tongue, all surgeons of experience are agreed as to the inutility of medication, whether topical or general, and the advisability of early and complete removal of the disease. A recent discussion at the Société de Chirurgie of Paris ('Medical Times and Gazette,' January 8th, 1881), has shown that all the leading surgeons of that city are agreed with those of other countries, that the administration of iodide of potassium in true epithelioma is useless, and that the constant application of nitrate of silver is harmful. The difficulty in practice is to induce a patient to take a sufficiently grave view of his case at an early stage, when an operation may be undertaken with advantage and with a fair prospect of relief, prolonged if not permanent. In the later stages, when the lymphatic glands are involved, it becomes a question whether any interference is advisable, and many surgeons would refuse an operation; but it appears to me that in many, even of the worst cases, temporary relief may often be given by operating, provided the patient is prepared to run the immediate risk of the proceeding, which is undoubtedly great; and Mr. Stokes of Dublin has recently brought before the Clinical Society of London cases in which he removed enlarged and infiltrated lymphatic glands with good results. Still, life prolonged in misery is worse than death following close upon the operation; and I have been thanked more than once by dying patients for having given relief during the few days for which they survived the operation. Anæsthetics have robbed operations of so much of their horror, that patients may now-a-days be induced to submit to extensive mutilations, which would have been impossible, or at least unadvisable, without chloroform.

Chloroform is necessarily the anæsthetic to be employed in operations upon the tongue, for ether is inadmissible; first, because of the difficulty of keeping the patient under its influence when atmospheric air necessarily gains free admission; and secondly, because if, as often happens, a cautery is required in the course of the operation, a dangerous explosion and conflagration in the patient's mouth may be caused by the inflammable vapour of the ether.

Ligature of the lingual artery has been advocated both by Demarquay and Moore ('Medico-Chirurgical Transactions,' vol. 45), in order to check the growth of cancer of the tongue, as well as for the arrest of hæmorrhage, but has not yielded the results anticipated. I have on two occasions tied the lingual artery, once for hæmorrhage occurring in the course of a case of cancer, and once with the view of checking the growth, which was rapidly extending; but in neither case did the ligature appear to have any influence in staying the course of the disease.

Division of the lingual nerve is another palliative operation recommended by Hilton and Moore; and this certainly is efficacious, for a time at least, in relieving the pain of a cancer involving the side and tip of the tongue. The operation is not a difficult one, and has the negative advantage of doing no harm, if it effects little good. The operator feels for the mylo-hyoid ridge of the lower jaw, immediately below the last molar tooth; and a sharp-pointed curved bistoury, pushed through the mucous membrane at this point, will readily divide the nerve against the lower edge of the ridge, with little or no bleeding. The side of the tongue will be thoroughly numbed for some days, and then sensation slowly returns from union of the divided nerve, when the operation may be repeated.

Removal of portions of the tongue with the knife is an operation which has fallen into disuse, owing to the hæmorrhage ordinarily accompanying it. Sir William Fergusson, who advocated the practice, and who thus removed more than one half of the tongue in the case of the late Dr. John Reid, maintained that the fear of hæmorrhage in these cases was exaggerated; and, in his account of that particular operation ('Practical Surgery,' p. 517), says: "The bleeding for a minute or two looked formidable; several vessels were speedily secured, and there was no further trouble in this respect." It must be noted, however, that the operation was performed without an anæsthetic, the patient being a man of great moral courage and physical endurance, and that only one lingual artery was divided. With an unconscious patient, in whom both arteries had been divided far back, I

have seen the very greatest difficulty arise in securing the vessels, which play across one another, and obscure the operator's view in the dark cavity of the throat.

In such cases, and in cases of secondary hæmorrhage after removal of large portions of the tongue, I have found that it is practicable to arrest all hæmorrhage in the following way: The forefinger, passed well down to the epiglottis, is made to hook forward the hyoid bone, and drag it up as far as practicable towards the symphysis menti. The effect of this is to stretch the lingual arteries so as to completely control for the time the flow of blood through them; and in this way portions of the anterior part of the tongue may be cut off almost bloodlessly.

The ligature formerly used for strangulating portions of the tongue has fallen into disuse, because of the practical difficulty of keeping it sufficiently tight to ensure continuous strangulation of the part to be removed, and also because of the suffering caused by a sloughing mass of tissue in the mouth. It is unnecessary, therefore, to consider the various modes devised for applying the ligature in former years.

The *écraseur* has been extensively employed for removal of portions or the whole of the tongue with very satisfactory results. The wire *écraseur* answers the purpose better than the chain instrument at first employed, in which portions of the tongue were apt to be twisted up. In order to effectually remove a diseased portion of tongue with the *écraseur*, it is necessary to isolate the growth by pushing well beyond it curved needles set in handles, around which the wire of the *écraseur* may be passed, and thus be kept in its proper position. Without this precaution the wire as it is tightened is certain to encroach upon the disease, and lead to an incomplete operation, and no forceps is sufficient alone to obviate the occurrence.

The galvanic *écraseur*, used in the same way, has the advantage of cutting more readily through the tissues, which it sears at the same time, thus preventing all hæmorrhage at the moment. It has, however, the drawback, that the separation of the slough necessarily formed by the cautery is very apt to lead to secondary hæmorrhage some days after the operation, and hence its use has been abandoned by many surgeons who formerly employed the galvanic *écraseur*.

Paquelin's thermo-cautery is a very convenient instrument for removing small portions of the tongue, since it is not necessary in using it to pass pins beyond the growth. It is liable, however, to the same drawback as the galvanic cautery, of secondary hæmorrhage.

Removal of one half of the tongue is an operation yielding

satisfactory results, and comparatively easy of performance. It was recommended by Dr. Buchanan, of Glasgow, who, however, divided the symphysis menti, a complication which is unnecessary in the majority of cases, as shown by Mr. Marrant Baker ('Lancet,' 1880, vol. i). A thread being passed through each side of the tip of the tongue, and the mouth gagged, the operator divides the *frænum linguæ* and subjacent muscles with curved scissors, which he runs along the floor of the mouth on the diseased side so as to divide the mucous membrane near the jaw, as far back as the disease reaches. Taking one thread in his left hand, and the other being held by an assistant, the operator then, with a blunt-pointed straight bistoury, divides the tongue strictly in the median plane, being particularly careful to divide the tough corium of the dorsal aspect well beyond the disease. Any bleeding vessel on the surface of the section is easily seen and secured, and with the forefinger the operator then tears through any remaining muscular tissue of the tongue or sublingual tissues, so as to isolate the half of the tongue to be removed. The wire loop of the *écraseur* can then be easily slipped over the apex of the tongue to the base, through which, if necessary, needles may be inserted, and the diseased half of the organ can be removed as far back as may be necessary.

Should the disease be so extensive as to require removal down to the hyoid bone, it may be necessary to resort to the plan suggested by the late Mr. Collis, of Dublin, viz. to lay open the cheek by a horizontal incision carried from the angle of the mouth. This would, of course, bring the parts more thoroughly into view, but with the drawback of increased hæmorrhage and permanent deformity. By employing an *écraseur* with the end slightly curved, I have, however, been able, in several cases in which I have removed half the tongue, to dispense with any external incision.

Removal of the whole breadth of the tongue may be readily performed with the *écraseur*, when the disease involves only the anterior portion of the organ; but, when it extends further back, free division of the sublingual tissues, as recommended by Sir James Paget, will be necessary, in order to allow the satisfactory application of the wire loop to the base of the organ. Mr. Baker has recommended that, in cases of entire removal, the tongue should be split, and the two halves be removed by *écraseurs* simultaneously; and the two methods are, for all practical purposes, identical.

Nunneley's method of applying the *écraseur* for removal of the entire tongue is as follows:—An incision is made in

the median line between the chin and the hyoid bone, and is carried up between the genio-hyoglossi muscles into the mouth, and the chain of an *écraseur* is carried through this. The base of the tongue being thus transfixed from above downwards by three pins, the chain is passed behind them, and the *écraseur* is worked from beneath the chin. The objection to this method is, that the tongue is necessarily cut obliquely, notwithstanding the use of the pins. Its advantage is, that a useful drain for discharges is maintained from the floor of the mouth.

Mr. Barwell ('Lancet,' April 19th, 1879) has modified Nunneley's method by making a small suprahyoid wound, and carrying a thread into the mouth, by means of a handled needle, much farther back than in the older method. The needle is made to enter the mouth close to the last molar tooth on each side, and the wire of the *écraseur* is drawn by the thread through the suprahyoid wound and round the base of the tongue. A handled needle is then passed from before backwards through the tongue at the point where the section is to be made, and the wire slipped behind it. When the tongue has been divided vertically, a second *écraseur* is applied horizontally in the mouth, to divide the sublingual tissues which have been left. Mr. Barwell claims for this method that it leaves a painless stump, because the lingual-gustatory nerves are divided close to the lower jaw; but this result is not peculiar to this particular operation, which does not appear to possess any special advantages over that of division of the sublingual tissues before the section of the tongue; whilst, if hæmorrhage should occur on completion of the section of the tongue, the organ itself would be very much in the way of the application of a ligature.

Mr. Barwell has introduced into practice a form of wire for the *écraseur*, which promises to be very serviceable. It consists of a strand of Newall's patent wire rope, made of untempered steel, with a thread in its centre, and is more flexible than any steel wire.

Regnoli, in 1838, devised a submental operation, by dividing the floor of the mouth close to the lower jaw from one facial artery to the other, so as to allow the tongue to be drawn down and fully exposed. It may then be removed with the knife or *écraseur*; but, if the knife be employed, care should be taken to divide only one lingual artery at a time. I have assisted in the performance of this operation more than once; and I think that for slight cases it is an unnecessarily severe proceeding, and has no advantage over the intrabuccal method; while for the more serious cases, in which it is necessary to go close to the hyoid bone, it has

the drawback that the surgeon is working in a hole, where it is very difficult to see and secure a bleeding artery.

Sédillot and Syme were the first to divide the lower jaw in order more thoroughly to extirpate the tongue. The operation is a very severe one, but affords the only satisfactory method of dealing with cases of extensive disease of the tongue, in which the floor of the mouth is involved.

An incision in the median line of the lower lip, prolonged to the hyoid bone, will allow of the dissection of the lip from the lower jaw for about a quarter of an inch on each side. With a drill the bone can then be perforated on each side of the median line, and about midway in the depth of the jaw, so as to admit of the two halves being subsequently drawn together with wire. The jaw is then to be divided exactly in the median line with a fine saw, which may advantageously have its handle raised above the level of the blade, so as to be out of the way of the patient's chest. The advantage of dividing the bone in the median line is, that the teeth are not interfered with; whereas, in Sédillot's method of dividing the jaw by a $>$ cut, it is necessary to sacrifice all the incisor teeth. In addition to the wire employed to bind the halves of the jaw together, the action of the muscles tends to maintain the parts in relation, and to press the halves of the jaw together, rendering the notching of the bone an unnecessary complication. If the vertical section be completed with the bone-forceps when about half the thickness of the bone has been divided with the saw, the slight irregularity thus produced assists also in maintaining the parts in apposition. The halves of the jaw being held asunder with hooks, the operator cuts the genio-hyoglossi muscles from the jaw with a pair of scissors, leaving the attachments of the geniohyoid muscles. With the forefinger and scissors the tongue can then be dissected up from the floor of the mouth with the sublingual glands and mucous membrane until the hyoid bone is reached; firm traction being made with a stout string passed through the tip. The tongue being then drawn down, the palato-glossi muscles forming the anterior pillars of the fauces will be put on the stretch, and must be divided with scissors, after which a handled needle should be passed through the tongue close to the hyoid bone, around which the wire of the *écraseur* should be passed.

The surgeon should be prepared with a handled needle and stout thread to transfix and hold the small remnant of tissue left attached to the hyoid bone, should the breathing be embarrassed by the epiglottis and base of the tongue falling back. In my experience, this is much more likely to

happen when a considerable portion of the tongue is left, than when the section is made far back, and the difficulty seems to arise from the weight of the piece left forcing back the epiglottis when the sublingual muscles have been divided.—*British Medical Journal*.

(*To be continued.*)

THE ENDOWMENT OF RESEARCH IN DENTISTRY.

By THOMAS FLETCHER, F.C.S.

MR. WHITEHOUSE, in his paper on the above subject, read before the Odonto-Chirurgical Society, evidently knows little or nothing of what has been done. He suggests that the profession be invited to subscribe to the authorities of the Chemical Society a sum of £50 annually for three years for the endowment of research into the subject of a possible improvement in white fillings. How much he expects would be done for this is hard to say, but I can tell him that the sum he proposes would not pay one half the cost of preliminary experiments.

I have had associated with myself for the last ten years two of the most able practical chemists I have yet met with. My payment to these for experimental work amounts now to a total of about £500. Seven years ago I gave up ordinary practice to devote myself for three years steadily to a series of experimental researches on every compound mentioned in the eighteen volumes of 'Gmelin's Chemistry,' noting possible methods for a second and more extended research. This series cost me a small fortune, took me nearly four years instead of three, as I expected, and resulting in disastrous failure, except in the discovery of the practical method to produce the powder now used for the phosphate of zinc cements, which at the time I failed to utilise. An attempt to utilise this was afterwards made by Rowney, which was a practical failure; at all events his preparation appears to have gone out of use.

I gave up—wearied out and with broken health—a search which I have again commenced, as I believe the required result to be possible. I may fairly say that for the last twelve or fourteen years my money and my life have been devoted to a search after a good white filling, knowing its value. Can Mr. Whitehouse expect that a series of experiments, such as have been gone through, could or would be

printed or reported? or that if printed any one except a few interested makers would read thousands of pages of failures, those few readers being the very people of all others whom one would not care to furnish with the information?

Of all known organic or inorganic compounds, so far as my capacity and knowledge go, I have not missed a single one, nor have I missed any possible variation of a process or material giving a chance of success. It is said that two heads are better than one, but in this case there have been three, and in ten years we have nothing to report so far as the actual attainment of a perfect result is concerned. Starting with a precise knowledge of what was required, I have spent the sum proposed by Mr. Whitehouse twenty times over, and no doubt others have done something, if not as much, as myself. At the commencement of the three years' campaign I built a laboratory specially and exclusively for experiments in white fillings, with every appliance which could possibly be needed. I have no desire to make public the amount of time and money lost in this search, which is now going on again almost as vigorously as ever, and my only object in doing so is to recommend those who think of subscribing towards the Research Fund either to retain their money for a better use, or to exceed my own offer, which has been repeatedly and publicly made in the chemical world, and which I here make in the Dental world, to any who chooses to take the matter up.

I will undertake to work out to a practical end any suggestion which has any hope of a good result, providing all apparatus and everything required at my cost. On the successful adoption of a permanent white filling fulfilling all required conditions which may result from my experiments and a suggestion which the originator may not have appliances to work out to a successful end, I will either pay one thousand pounds for the sole right to make or a share in the gross receipts. In any case I will take the whole trouble, expense, and risk on myself. This is an offer now ten years old, and is a much more practical idea than providing £150 for the use of an experimenter who has no interest in his results.

The endeavour to stop a probable waste of money must be my apology for publishing matters which are of little general interest and only concern myself. Personally, I should like Mr. Whitehouse's proposal to be carried out, as it might possibly result in a hint of value to me.

Successful research in useful matters is already well endowed, unsuccessful research is of little if any value, and may be safely left to take care of itself.

A perfect and successful white filling means simply a fortune to the discoverer, but the conditions required are so many and so rarely combined in any material that the end is apparently far off yet. It is possible that no compound or material either exists or can be produced which will fill all the conditions necessary. I have attained almost all the conditions repeatedly, but failed in some vital point when everything else was right. As an example, I have now a compound which sets so hard within a few minutes that no drill will touch it, and which under certain conditions offers ten times the resistance to all solvents as compared with the best white filling known. It works well and is in every way faultless, except that, when exposed to solvents and rubbing at the same time, it dissolves away in an unaccountable manner, and therefore the probabilities are that it will fail in the mouth in a large proportion of cases. A chemist without practical knowledge would say this material, which an analysis would show to be identical with ordinary English porcelain or china, had every required property. A practical Dentist would probably condemn it as totally worthless.

Hospital Reports and Case-Book.

CASE OF REFLEX PAIN.

By J. W. GRIFFITH.

I HAVE just had an interesting case of reflex pain come under my notice. A month ago a little girl, fourteen years of age, was brought to me by her father suffering, as I was informed, from a severe attack of toothache proceeding from an upper right second molar. On examination I found the said tooth perfectly sound, and refused to extract it although pressed to do so by father and patient. On further examination I found a lower *left* second bicuspid very much broken down by disease, which with the parent's consent I took out, when the pain instantly left and up to date has not returned. I should like to know if this can be considered a case of *direct* reflex pain

King William's Town, Cape of Good Hope.

[WE do not quite understand our correspondent's question. One reflex pain may be more direct than another; thus, a

reflex pain occurring in the same arm as the irritating cause, may be said to be more direct than a pain occurring in the leg or in the arm of the opposite side to the lesion. But reflex pains can hardly, in our opinion, be divided by a hard and fast line into two classes, of which one may be called direct and the other indirect. The case, however, is one of extreme interest from a pathological point of view, and illustrates an obscure causal nexus, the importance of which is too often forgotten. The best paper on the subject is one by Mr. James Salter, in 'Guy's Hospital Reports' for 1868, entitled "Affections of the Nervous System Dependent on Disease of the Permanent Teeth." Mr. Salter gives not only cases of neuralgia resulting in a reflex manner from carious teeth, but also cases in which chronic trismus, wryneck, epilepsy, paralysis, amaurosis and deafness, were traceable to a similar cause. In some of these cases the neuralgia was on the same side as the irritation, in others on the opposite side. Thus, in one case, neuralgia of the vertex of the head on the left side was traced to an impacted right upper canine, on the removal of which the pain instantly vanished and never recurred. Those of our readers who may wish to follow up the subject further are referred to the article above quoted, to Anstie "On Neuralgia, &c," pp. 14, 134, *et passim*; and to a most suggestive address delivered by the late Prof. Rolleston at the Oxford meeting of the British Medical Association, and published in the 'Medical Times and Gazette' for August 15th, 1868.—EDITOR.]

REGULATION OF THE TEETH IN ADULTS.

By G. MURRELL.

I BELIEVE it is generally considered useless by the profession to attempt regulating teeth after the age of from eighteen to twenty-five years; I am rather surprised at this, for though a much easier task when it is performed in early life, it is by no means an impossible one in post-meridian life; certainly it is more tedious to both patient and operator. I have just completed a case in which the age of my patient is fifty-nine; it has taken me about eighteen months to accomplish. The two lower lateral teeth were much out of position, and leaning in a lingual direction, so much so as to greatly interfere with the act of speaking, while the two centrals were projecting outward. The four teeth are now brought into position; I have carefully watched them

for the past three or four months, but can discover no tendency in them to return to their former position.

Southgate Street, Winchester.

British Journal of Dental Science.

LONDON, JULY 1, 1881.

WE should imagine that our readers are as heartily weary as we ourselves are of the interminable discussions which have been kept up without intermission since the passing of the Dental Act. The general wish now probably coincides with our own, to make the best of the situation, unsatisfactory as we may deem it, and to say as little about the past as possible. But there is just the fear that in the reaction after the fight we may lose sight of its objects, and forget to reap the fruits of victory. We see too many signs of a tendency to accept the Dental Act as an end in itself and not merely as a means to other ends, as a piece of mechanism, which once wound up and set going, will elevate the Dental profession automatically, without any further attention than is involved in the periodical greasing of the wheels by the Medical Council, and the supply of raw material by the licensing bodies. The general feeling undoubtedly is one of grievous disappointment at the results of the Dental Act blended with a sanguine belief in the healing effects of time. Now, what seems to us to require to be especially insisted upon at the present juncture is that the Dental Act has not in one whit lessened—much less entirely removed—the personal responsibility of every member of the profession to do his utmost for the future elevation of Dentistry, both from a scientific and a social standpoint. To hear some men talk, one would think that Dental registration, like political representation, was a panacea for every evil, instead of being what it really is, a temporary and

rather clumsy expedient for protecting the public from quackery and incompetence. For after all it was the thirty millions of English people whom Parliament had in its mind when it passed the Dental Act, and not the few thousands of Surgeon Dentists. That they also would be benefited by the Act was doubtless a fortunate and gratifying by-result, but it was certainly not the result which most powerfully influenced the members of the legislature. If it had been thought that the public were as good judges of a Dentist's skill and honesty as they are of the competence of their plumber or paperhanger, it would have been long before Parliament would have consented in this age of free trade to have protected a new interest and granted a fresh monopoly. It is in short the ignorance and incompetence of the lower grades of the public—not the ignorance and incompetence of the lower grades of the Dental profession—which has been the foster parent of the Dental Act. Two corollaries necessarily follow from this. The one is, that in proportion as the public become more highly and scientifically educated, the necessity for state protection of the Dental profession will grow less and less, until in an Utopian state of general culture it might become almost a vanishing quantity. The other is that, as after all the real examination which the Dental surgeon has to pass is before the public as examiners, and the real test of his competence is the life-test of success, it is not less the interest of the profession to educate and elevate the public, than to educate and elevate itself, to the end that the rewards which the public has to bestow may be distributed more accurately in proportion to skill and knowledge, and that the ground may be cut from beneath the feet of registered incompetence.

These remarks—commonplace as they may seem—will not appear to our readers as unnecessary, or as delivered merely in the air, when they learn what it is that has suggested them. In another part of the present issue we publish an abstract of a letter written by the English correspondent of the 'Missouri Dental Journal,' and intended on the face of it rather for reimportation than for foreign consumption. To those who are well acquainted

with the esteemed leaders of our profession, and not less familiar with the currents of political thought in England, the animadversions of our American *confrère* will appear so wide of the mark—not to say trivial and absurd—that they might well be passed by without comment. But there are others, abroad if not in this country, for whom the throwing of a sufficient amount of dirt involves, as a necessary consequence, the sticking of some of it, and it cannot be denied that the English correspondent of the ‘Missouri Dental Journal’ has a fairly capacious hand where dirt throwing is concerned. Fortunately he is not equally accurate in aim.

The whole gist of his lengthy diatribe is that the promoters of the Dental Act were actuated, not by a desire to elevate the Dental profession, but to protect it. If they had wished the former they would have been contented with establishing efficient Dental schools in all accessible parts of the country, and would have welcomed to England every man who understood the practice of Dentistry, whether qualified (by examination) or not. Instead of this they dragged a respectable profession into *the dirty arena of political strife*, where there had to be a fight over conflicting interests, and a scramble for rights and privileges. This latter sentence reveals the writer’s nationality. Could an Englishman by any force of imagination conceive of an English legislature so *dirty* that a small and hitherto neglected profession could force it unanimously to grant an Act simply for the purpose of protecting the selfish interests of that profession. To an Englishman the idea is absurd on the face of it. The simple fact is that the surest method of raising the Dental profession happened to coincide with a measure of great public utility, and following in the footsteps of medical reformers years ago, the Dental reformers seized on this fortunate coincidence. What would have been the use of establishing Dental schools all over the country, so long as the young Dentist found the public as ready to go to an uneducated as to an educated practitioner? And what would have been the utility of enforcing the possession of a Dental education and licence at home if it had been left open to the young aspirant to rush across the Atlantic and

return home in triumph with a brand new diploma from some unknown American college? No; there can be no doubt that registration and subsequent compulsory education were the necessary first steps towards improvement in the status of Dentistry. And having gained these things it is our part individually to work and wait with patience. The Medical Act was passed years before medical education began to be placed on a thoroughly satisfactory basis, and though we have the advantage of the experience, and happily in some measure of the co-operation, of the medical profession in our upward progress, let us not be disheartened if we find unlooked for delays in the extension of Dental education and the improvement of our profession.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, JUNE 13TH, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

ON taking his seat the PRESIDENT spoke of the loss which the Society had latterly sustained by the death of Mr. Isaac Sheffield; he had been one of its oldest members, a past president, and had always taken great interest in its progress.

Mr. ROGERS also announced that the Committee of the Dental Section of the International Medical Congress unanimously approved of the proposal of the Council of the Society to hold a *conversazione* on the evening of August 2nd, the first day of the Congress.

MAMMOTH IVORY.

Mr. CHARLES TOMES remarked, *à propos* of a mammoth tusk which had been sent for the museum, that it was a popular belief that mammoth ivory was an important article of commerce, but this was not true. In 1873 and 1874 some large importations of it were brought to this country, but only part of this large quantity was sold, and those who bought it did not find it good. Every now and then some of the remainder was brought forward for sale by auction and bought in, giving rise to the idea that there was a

regular supply of the material. Tusks were occasionally found so perfect as to be valuable as ivory, but generally they were so discoloured and broken up by exposure to the weather, the action of floods, &c., as to be almost worthless.

ABSCESS FROM A WOOD-SPLINTER.

Mr. HILDITCH HARDING showed an upper central incisor which he had extracted from the mouth of a boy at St. Thomas's Hospital on account of abscess about the fang; half of the crown had been broken off some time previously. On examination a piece of wood was found projecting a quarter of an inch beyond the apical foramen; this had evidently caused the abscess. On being questioned, the boy said he had been in the habit of chewing wood occasionally for amusement, but he had no idea when or how this splinter got into the tooth.

ANOMALOUS ERUPTION OF WISDOM TOOTH.

Mr. COLEMAN related a case illustrating the difficulties which might occasionally arise in the performance of what promised to be a very simple operation. A patient came to him complaining of pain in an upper wisdom tooth, which was carious. Mr. Coleman stopped it, but the pain returned, and the tooth was therefore extracted. It came out very easily, but one of the fangs was missing, and on feeling in the alveolus a hard substance was met with which he took to be the broken fang. Further examination showed, however, that it was not a broken root, but a second wisdom tooth which was coming down above the first, and the pressure of which had caused absorption of the root of the extracted tooth.

GROWTH ON LOWER JAW.

Mr. Coleman also showed a model from a case under his care at St. Bartholomew's Hospital. The patient had a hard inelastic growth on both sides of the lower jaw, which had deflected the lower teeth inwards, so that the upper teeth bit on the external surfaces of the lower; it had been four years in forming. The stump of the second right molar was removed, and some fragments of the growth which adhered to it were examined under the microscope, but all that was found was some hypertrophy of the alveolar-dental membrane. Mr. Coleman hoped to report the further progress of the case at a future meeting.

EXCISION OF JAW—SUBSEQUENT TREATMENT.

The CAVALIERE ATKINSON, of Naples, showed some models taken from patients who had been operated on for

tumours of the jaws, together with the plates by means of which he had filled up the gaps made by the operations. In one case, that of a woman who had been operated on for osteo-sarcoma, almost the whole of the right half of the upper jaw had been removed; and in another case, in which the tumour had recurred, the nose and part of the cheek, as well as a large portion of the upper maxilla, had been removed, yet the features had been restored by means of a piece of semi-vulcanised rubber, carefully moulded and coloured in such a way that the disfigurement was not distinguishable at a distance of a few feet. He showed, also, models of two cases in which portions of the *lower* jaw had been removed, and explained that these were much more difficult to treat on account of the slight support afforded by the remaining fragment of bone, and the great tendency there was for this to be displaced backwards and inwards by muscular action.

SPECIMENS OF MECHANICAL DENTISTRY.

Mr. CHENEY, of Manchester, showed a vulcanite plate the palate of which was covered with gold foil and then vulcanised. Vulcanite plates were often complained of as being hot, owing to this substance being a bad conductor; the combination of gold greatly diminished this inconvenience. Mr. Cheney also showed a very neat and ingenious mode of attaching porcelain crowns to natural roots by means of either white stopping or amalgam, an apparatus for approximating the central incisors, and an upper denture of celluloid, showing the thickness the piece should be made in order to prevent its warping and splitting round the teeth.

CHRONIC SUPPURATION CONNECTED WITH THE TEETH.

Mr. DAVID HEPBURN then read a paper on "Chronic Suppuration connected with the Teeth." He did not intend to refer to ordinary cases of chronic alveolar abscess, where a fistulous opening existed on the surface of the mucous membrane communicating by a short canal with the root of a tooth, but should confine himself to those more complicated cases in which there was a continuous or intermittent discharge which had penetrated to a part remote from the original situation of the mischief, involving in its course the destruction of a large amount of tissue. Thus, in a case which he had recently been treating, an impacted wisdom tooth had given rise to an abscess, the body of which was situated in the tissues behind the ramus of the lower jaw, but which also extended as far forwards as the canine, and

downwards into the neck. When these cases became chronic the discharge might be rather serous than purulent, but in some cases it continued purulent and very offensive, leading one to suspect the presence of dead bone. Even in the absence of dead bone, matter collected in a tortuous canal or cavity communicating with the mouth was placed under conditions highly favorable to putrescence, and strong antiseptics were required to prevent this change. In cases where it was not found possible entirely to check the discharge, we could render the patient a great service by disinfecting it. The most satisfactory agent for this purpose was eucalyptus oil, the use of which had been suggested by Mr. Arthur Underwood. After having used this remedy in some very aggravated cases he felt that he could scarcely speak too highly in its praise.

In most cases the extraction of the teeth which had been the original cause of the irritation would be followed by the closure of the sinus, but it was not always easy to discover which tooth was the real cause of the mischief, and sometimes even when this was extracted little improvement would result. In such cases it might generally be concluded that some small portion of necrosed bone remained behind and was keeping up irritation. But this could not always be discovered even by the most careful search with the probe, and it might remain for months, and even for years, surrounded by fibrinous deposits, without being absorbed. When at last, perhaps after protracted treatment, the fragment was discovered and could be removed, a rapid cure resulted.

Mr. Hepburn related several cases illustrating these points; In one of them the patient was under treatment for five months and was eventually cured by the extraction of a right upper lateral. In another the patient, a young man, had been suffering for seven months from a profuse discharge of offensive pus, coming from the socket of an extracted right upper lateral, before he applied to Mr. Hepburn for advice. Active treatment was persisted in for eight months with but partial success, when suspicion fell upon the centrals, which were broken and unsightly. They were extracted, and at the bottom of the socket of the right central a piece of dead bone was found, together with a canal which communicated in a circuitous manner with the sinus which had been so long discharging. The patient had improved greatly since the extraction of these teeth, but the dead bone had not come away and was still under treatment.

These were cases which were a great source of trouble and anxiety to the practitioner and of distress to the patient; he

hoped therefore that those present would give their experience with regard to them, especially with respect to their pathology and the best modes of treatment, and that some light might thus be thrown upon one of the difficulties of the profession.

Mr. ARTHUR UNDERWOOD said he was very pleased to hear that Mr. Hepburn had formed so high an opinion of the value of eucalyptus oil; it was certainly a very powerful antiseptic, more lasting in its effects than carbolic acid, and it possessed also valuable stimulating and healing properties. In cases where dead bone was present it was very difficult to keep the discharges absolutely sweet, since the bone served as a haven for bacteria into the recesses of which the eucalyptus oil could not penetrate. In all other cases the remedy would be found thoroughly effectual and would greatly shorten the time required for treatment.

Mr. HUNT (Yeovil) thought that too much was made of the presence of bacteria. These organisms were found everywhere; even in health we all swarmed with them, and nobody thought anything about them. There was no doubt that in the majority of cases these sinuses depended on the presence of dead bone; but they were also lined with mucous membrane which was in a bad state. The source of irritation should be removed and the diseased lining membrane scraped off; the sinus would then heal without further trouble.

Mr. GADDES related an interesting case which had been under his care at the National Dental Hospital. He had found the injection of tincture of iodine very useful.

After some remarks from the President, Mr. F. H. Weiss, &c., Mr. Hepburn replied and the meeting terminated.

Literary Notices and Selections.

AN AMERICAN VIEW OF DENTAL POLITICS IN ENGLAND.

LAST year we published a series of articles on Dental Reform from the pen of the English Correspondent of the 'Missouri Dental Journal.' That clever, if somewhat laboured, caricaturist has again been devoting his attention to Dental politics in England, and has recently indulged his readers with some twenty pages of closely printed matter on the

subject. Our own readers are entitled to somewhat more consideration, and we only present them with a short abstract containing the more important parts of the article.

The writer's object, in this and previous communications is assumedly to show that Dental politics are "not only a blunder, but something worse" (we presume he means a crime), while Dental Reformers have all this time been engaged "in dragging a respectable profession into *the dirty arena of political strife*, to fight out conflicting interests and to scramble for rights and privileges." There can be no hope, he writes, for the future of Dentistry except in its growth as a science. The real aim of Dental politics is unwarranted and opposed to everything a good citizen should desire; its work is undignified and degrading to Dentistry, and can only prove an injury to the profession; while all the good its promoters profess to desire must be obtained in other ways.

In his previous communications the writer had maintained that the real object of the Dental Bill was "to *limit the number of Dentists*, and to prevent by a legal enactment, which did not reveal the intention but could be manipulated for that purpose, the advent of any more of those finger-skilled Americans." To maintain this thesis, to which one of his English critics has unhesitatingly given the lie, is the main object of the writer's present article. If, he says, the real object of Dental Reformers had been—as they stated—to secure a special education for and so raise the status of Dentists in England, then, "instead of spending their energies in getting up a Register, and then in an attempt to organise the profession to watch it, all their energies would have been directed to the establishment of efficient schools in the accessible parts of the country, where Dental education of the best possible description was (*sic*) given at the least possible expense to the student. And this effort would have been followed up until the graduates of these schools were recognised as so superior to all others, their fitness would have been sufficient protection, not only against the charlatans, who would have disappeared as skilful men took their places, but against all outsiders, however great their learning and skill. Moreover, every man who understood the practice of Dentistry would have been welcomed to the country if it was so ardently desired to raise the status of Dentistry, and nothing could have induced any one to attempt the exclusion of those who have done so much to elevate the status of Dentistry in England by the daily example given in their practices. That all this was not done, but something quite different, effectually disposes of

the assumption that Dental politics was intended to promote Dental education. And in not providing for education, but for protection, it reveals the reformers' real intentions.

"Of course, education of some sort was of necessity often named in the advocacy of reform. But so far from being the object in view it was merely a power played on the political chess board. We have only to look into the Act of Parliament to ascertain this. Instead of being an Act to provide for education, it is wholly taken up with what is evidently the main feature of Dental politics, namely, compulsory registration; and all the reference to Dental education therein is based on the assumption that it was not only already secured, but was so superior to that given in other countries, there was nothing left but to give the English public the advantage of this superiority by protecting the English Dentist against the foreigner. . . . The Act itself does not avow its object to be that of securing a special education for Dentists, but declares it to be the registration of Dentists, and it is wholly taken up with that object. In carrying out this measure, it provides for the registration of all in practice at a certain date and those who shall hereafter obtain the L.D.S. licence, or have any foreign diplomas that give, in the opinion of the Medical Council, not one of whom are Dentists, sufficient evidence that the holder possesses the required skill to practice Dentistry. Under this head no American Dentist is allowed to register unless he holds the Harvard or Michigan degree; not that they imply any more proficiency, but require more of the students' time. If it had not been their intention to exclude American Dentists, the reformers would at once petition the Medical Council to have those diplomas accepted as evidence the holder possessed the requisite skill for the practice of Dentistry.

"While some of the reformers tell us the object of the Act of Parliament, which we see provides for compulsory registration, is really intended to secure a special education for Dentists, others frankly reveal its real purpose. . . . Thus the secretary of the British Dental Association, in a speech delivered at Manchester, appeals for organisation and funds to 'protect the interests' of the Dentists who had acquired 'rights' under this Act of Parliament. The great benefits of registration, and the necessity of maintaining the privileges it had secured was the key note of the address. . . . After alluding to the discontent caused by the Act, the speaker says, 'it is impossible to frame any Act of Parliament which will glide through the maze of conflicting interests and jar upon none.' But if reform concerned itself with

securing a special education for Dentists, and so raising their status, what conflicting interests would it be necessary to glide through? And, especially, how would it be necessary to protect the home as against the foreign Dentist, unless it was because the latter had received a Dental education the reformer finds so effective that he could only secure what he regards as his privileges by being protected against it? In the same speech this gentleman estimates the yearly accessions of Dentists under reform to be about fifty per annum. If a scheme over which its concoctors exult, results in limiting the increase in the number of Dentists to fifty per annum in a population of over thirty millions of the most cultured people in Europe, was not intended to limit the number of Dentists, I would like to know what term the reformers would use to describe the case.

"As we have been furnished with the data by the reformers themselves, I thought it worth while to go into the figures. Consultation with one of the most eminent of living actuaries gives the following result. All the figures by which the result was obtained would be too voluminous, but any one who doubts the accuracy may go into the matter for himself.

"Given a register January 1, 1880, of 5291 names of all ages from 20 upwards, we calculate that of these—

" Probably 850 are between.....				20 and 25
"	1550	"	"	.....25 " 35
"	1150	"	"	.....35 " 45
"	850	"	"	.....45 " 55
"	530	"	"	.....55 " 65
"	230	"	"	.....65 " 75
"	131	"	"	.....75 and over

5291

"Of these, it is shown by the above calculation that the number that will be—

" Alive in 1890 may be estimated at.....				4280
"	1900	"	"	.....3325
"	1910	"	"	.....2335
"	1920	"	"	.....1340

"Now, if we add fifty names annually to this register, we have in ten years 500 names. But they will not all be alive. It is probably fair to deduct for loss by death 15 names, leaving 485 at the end of the decade. Of these 485 it is estimated that 460 will be alive at the end of twenty years, 410 at the end of thirty years, and 350 at the end of forty years, which gives the following result.

Jan. 1, 1880. Jan. 1, 1890. Jan. 1, 1900. Jan. 1, 1910. Jan. 1, 1920.

5291	4280	3225	2335	1340
	485	460	410	350
		485	460	410
			485	460
				485

Total, 5291	4765	4170	3690	3045
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"This gives a reduction in ten years of 526; in twenty years of 1121; in thirty years of 1601; and in forty years of 2246; or about 550 each decade, and just a fraction short of one half in forty years. This makes no allowance for the efforts of the British Dental Association to remove names from the register.

"In such a scramble as reform created, to secure the vested interests acquired by the Register, the names of many men got on, as we have since found out, who are not and never were Dentists; and who will never practise as such. And, although the efforts of the British Dental Association has (*sic*) resulted as I have always anticipated, and these names must remain on the Register, yet we may safely assume that at least 400 of them are practically of no account. If we add this number of names to the 2246, we have 2646, or a reduction in the number of Dentists of just one half in forty years; or, to put it in another way, the data the reformers furnish us show that registration was not only intended to limit the number of Dentists, but that even with the utter collapse of the efforts of the British Dental Association to reduce the number now registered, it will leave for the three kingdoms in forty years but little more than 2500 Dentists. Of course, if the British Dental Association could have effected anything, the reduction would have been still greater.

"Lastly, the fact the reformers had no higher idea of the uses of Dental organisation than to get up the British Dental Association, which, notwithstanding its high sounding name, is little else than a private detective agency and trade's union combined, and is, so I am told, in accordance with its objects in promoting the interest of the 'trade' and putting down 'knobsticks,' actually registered in company with the friendly societies, shows they had no aims but rights and privileges; and conceived the end of a Dentist's public duty was attained in watching the working of the Act of Paliament which secured this monopoly."

So far our gentle critic has kept fairly close to reason and to argument, with but an occasional splenetic outburst. It is when he comes to the exclusion of the diplomas of the American colleges from the English Register that he waxes

loudest, we had almost said, most inarticulate in his wrath. "For a set of men" he exclaims in a fine, if ungrammatical burst of passion, "it is difficult to conceive which of them could pass an examination at any of these colleges; who give scarcely any evidence of understanding Dentistry in the higher sense it is taught at these institutions; the larger part of whose practice consists in making false teeth and the necessary preparation for that kind of work; who depend upon the graduates of these schools for nearly all the advancement in Dentistry, and with whom secrets are a part of the stock in trade, to pretend they give a superior education can only be excused upon the ground they do not understand what is required in a Dental education, and that is, undoubtedly, just the difficulty under which the political Dentists labour. Their excuse for not registering American diplomas is because they have not required a curriculum 'equivalent to our own.' This curriculum is represented by the L.D.S. licence, and is vaunted to demand three, while the American colleges only require two years' time. The reformers make a great deal of the time required of Dental students. Does it never occur to them that a student may learn more of Dentistry in two years at a college where everybody is in keen earnest, and the teachers are the most eminent of living Dentists, intent on freely, indeed, enthusiastically imparting all they know, than in a lifetime spent where no one can accuse the teachers of possessing a remarkable degree of skill? And when we consider the fact they do not after all require the time for the L.D.S. qualification they base their claim of superiority upon, the mind is lost in amazement. What time it really requires to obtain the L.D.S. qualification is stated in the advertising column of the English journals. It has varied as occasion required. I give entire the last form:

‘THE L.D.S. DIPLOMA (SINE CURRICULO).

‘Gentlemen intending to prepare under my

Practical postal system

during the remaining seven months, should communicate with me at once, for under my system I do as much for candidates in from three to four months' time as others take from one to two years to accomplish. In proof of my success I refer to the fact that EVERY GENTLEMAN sent up by me NOW HOLDS HIS DIPLOMA. My system not only condenses, but dispenses, with a vast amount of unnecessary reading, and no gentleman is ever sent up by me until he is thoroughly grounded and sufficiently well up to satisfy any of the examining boards. The time is now limited, and a suc-

CESSFUL TUTOR is an all-important matter for gentlemen intending to qualify ere the doors are closed.

'Special Demonstrations are given on the Bones of the Head and Face, the Nerves, Muscles, &c.; also in Gold Filling, the Rubber Dam, the various uses of the Dental Engine, the Automatic Mallets, &c., &c.,

'Terms, &c., on receipt of a stamped directed envelope and professional card.'

(Name and Address of Advertiser.)

"While foreign diplomas are refused as not representing what is equivalent to the L.D.S. licence which gives the holder his 'rights and privileges,' because they require only two years' study and are, in rare instances, granted *sine curriculum* (*sic*), we find the L.D.S. degree can be obtained *sine curriculum* (*sic*) and with only three months' study, without leaving home or interfering with the candidate's practice. After all this boasting of the superiority of the education upon which registration was based, we find that what it really requires is only three months' time under the direction of a man in no way connected with any school, and who carries on his teaching by a 'postal system,' and fearlessly advertises that no gentleman need fear failure, as he can grind them up to all the 'tips' necessary to pass any of the examining boards. If this does not show a difference between pretence and reality, lawyers may cease discussing the rules of evidence, for there is no such thing as conviction upon testimony. No comments of mine, even if my pen was made of a quill plucked from a wing of a demon in whose laboratory is manufactured a *blizzard*, could give so withering an answer to the pretentiousness which underlies Dental politics as this advertisement.

"It is true we are told that this kind of admission to the L.D.S. licence is to cease at a given period. We all know the world is full of those who are going to do right tomorrow, and it is said a certain place is paved with good professions. But to-day is always the time for grace to show itself. A host of anomalies start up like ghosts when we consider the action of those who have urged on the reform movement as shown by this advertisement, every one of which reveals how strange are their ideas of justice and English common sense. They are horrified by advertising; establish a school which requires three years of the student's time to obtain the licence which, professedly, alone allows him to consider himself a properly qualified Dentist; boast of its superiority, and, on the strength of this boast and the time required, exclude by law the graduates of schools all

the world admits do give efficient education, in order that their graduates may have all the 'rights and privileges' accruing to Dental practice, and the public shall enjoy the benefit of a superior class of Dentists; and then turn round and give the evidence they bestow upon the student that has complied with all the necessary requirements, upon any outsider who puts himself under the guidance of an advertiser who guarantees to pass his pupils.

"If three months is all that is necessary to acquire the learning needed to hold the L.D.S. licence, why require more time in any case, now or in the future? And why should a man go to London and waste valuable time for what is openly admitted he may obtain by staying at home and without interfering with his practice? And what is the 'vast amount of unnecessary reading' referred to? And what sort of a Dental education is it that can be obtained by the 'postal system' in three months' time? And if three or four months is all that is required, certainly the two years at an American college ought to suffice.

After some personal explanations which will not interest our readers, the writer continues: "Dentistry has grown great in America on the only—I say it emphatically, the *only*—line it is possible for progress to be made; and to deviate from it would be to retrograde and not to advance. Free, open, generous and healthy rivalry, with a free interchange of opinion, is the only road to success in everything; and to keep down intelligence, industry and skill, for the benefit of the idle, slothful and dull, is to smother all progress. It is because the American Dentists have trod the nobler path, they have now their proud distinction; and I would have them continue as they began. And it is because Dental politics is not what its advocates would have them believe, that I have shown it in its true light, so it may not induce them to imagine anyone else has found a better road to success.

"My language has sometimes appeared pungent. My candid reader, who is only intent on devoting himself to hard study and harder work, and honestly relies upon his honest efforts for success, may be certain that it comes far short of an adequate description of this great piece of protection in a land which boasts from every mouth that it has adopted to its (*sic*) fullest extent, the principles of free trade; and that I have not the power of putting before them any adequate idea of the means by which such things are carried on. . . .

"Now that I have shown Dental politics to have really little to do with anything else than 'rights and privileges;' that

its intention is to limit the number of Dentists to the least possible number, whereby a few may monopolise the practice, to the detriment of the profession, and regardless of the interests of the public it is professing to serve, we are in a position to inquire what its promoters have accomplished.

"When the Act of Parliament had been obtained and registration begun, it was soon discovered there had been a blunder somewhere, for a lot of men were getting on to the Register no one had ever before considered, nor had they considered themselves, to be Dentists. None of these persons would have thought of registering if they had not been led to suppose, by the loud exultation of the reformers over the passing of their Act, they would be debarred from performing even so simple an operation as extracting a tooth. And now, as I have before intimated, numbers of them would be glad to have their names removed from the Register on condition they got back the fee, for they are really not affected by the Act of Parliament, and can extract all the teeth they like with impunity.

"Finding these men had registered, the British Dental Association was organised to undo the mischief. It is needless to go into the details of the matter. The result was, this association was routed, horse, foot and dragoons, and is now the laughing-stock of the medical world. Not only are the barber tooth drawers who fought for the right to be on the Register, retained, but even those who had been frightened by threatening letters from the British Dental Association into asking to have their names removed from the Register, may be restored on application. In short, we have one more illustration that folly brings its own punishment. A more overwhelming and a more humiliating defeat could hardly be conceived.

"Reform has occupied several years' time, and it must have cost nearly, if not quite, fifteen thousand pounds. Registration alone cost over ten thousand pounds—and what is the result? Merely this. A Register has been got up containing the names of those, high and low, who call themselves Dentists, a few surgeons, hundreds of keepers of chemists' shops, barbers, veterinarians, and so on, the very sight of which is enough to make even the most ardent reformer sick to look at. To this injudicious mixture of competence and incompetence, of respectability, mediocrity, and rag, tag and bob-tail, is given the sole right to call themselves Dentists in Great Britain to the exclusion of all others, however famous for their learning and skill. This is the result, so far, of all this hubbub called Dental reform?

"Let the reformers turn which way they will, there is no escape from the *cul-de-sac*, into which they have blindly marched, but to retreat. And if they are in earnest, they will start by relieving us from the burning disgrace of the Register, which means a petition to Parliament asking for a repeal of the Act which has produced this unsavoury conglomeration. When this is obtained, a movement which shall not be confined to a clique, or be animated by the extreme folly, selfishness, little-mindedness and brag of the Dental politicians, but which shall embrace the whole profession, and be guided by the wisdom of its best men, must be set on foot to consider the present condition and future prospects of Dentistry, with the intention, when the matter is fully discussed, to take such steps as may be thought desirable. We can thereby get to know what we are, who we are, and what we shall do. And the first thing to do will be, establish Dental education which teaches Dentistry."

THE SCHLESWIG-HOLSTEIN SOCIETY OF DENTAL SURGEONS.

THIS Society, though not a very numerous one, evidently keeps itself well up with the latest advances in science and practice, as may be seen from the following list of problems discussed at its last annual meeting and published together with the decision arrived at in each case, in the 'Deutsche Vierteljahrsschrift für Zahnheilkunde.'

1. The most rational treatment of epulis.

Operation is the best treatment. Caustics are to be avoided. The epulis should be removed by the ligature or the knife, and if necessary, even part of the bone should be taken away.

2. The causes and treatment of maxillary cysts.

Maxillary cysts take their origin from the teeth, and as a rule, extraction of the tooth is all the treatment necessary. In obstinate cases, caustic solutions should be injected, and a seton introduced. In the worst class of cases one may have to proceed to excision of the alveolus.

3. What are the results of trephining the teeth (opening up of pulp cavity) in pulpitis and dental periostitis, and how long are such teeth likely to be preserved?

The operation of trephining the teeth has proved useful both in pulpitis and dental periostitis, the pain being at once removed by it. The best means of preserving and

rendering useful teeth which have been operated on in this way, is by treating them antiseptically, and filling the pulp cavity with cement.

4. Which is the best method of making celluloid dentures?

The method of pressing appears to be the most advantageous.

5. At what age of childhood does the treatment of defective palate, by means of an obturator, offer the best chances of success?

The obturator should be fixed as soon as there are a sufficient number of temporary teeth for holding it in place.

CASES OF REPLANTATION.

THE following two cases, taken from 'Cosmos' and 'Johnston's Dental Miscellany' respectively, will be read with special interest now that the subject of replantation is attracting so much attention here and abroad:

In November, 1879, Mr. A. T. M—, of Hampton, Georgia, made application to me concerning an injury he had received while riding on horseback. It was then two weeks after the accident had occurred (his horse falling with him) by which he had his two upper central incisors knocked out. One of the teeth was found and replaced soon after the accident, and was yet a little loose in its socket. He was much concerned about the loss of the other tooth, saying he would rather have it in its place as it was before the accident than have the highest gift in the hands of the American people. He had not yet found the tooth, though he had spent much time in searching for it. I told him that the time had passed, I thought, for a successful operation, but that I would make the experiment in case he found the tooth without much further delay. In one week after this time he returned with the tooth in his possession. I was really sorry to see him, and did my best to discourage him from having the replacement attempted. He insisted upon it, however, and I concluded to make the effort. The tooth had the appearance of an old bone, whitened by time. I took off enough of the apex of the root (say the sixteenth of an inch) to give me a clear opening into the nerve canal, which I filled with gold. I then cut three grooves longitudinally with the root, from the beginning of the cementum to the apex, to serve as drains to conduct away any morbid secretions that might collect in the socket. Then, with a

corundum wheel I ground the entire surface of the root very slightly to allow for the little contraction I supposed three weeks would have caused in the alveolar walls. I then placed the tooth in a glass of tepid water to await the preparation of the socket, which I began (after putting my patient well under ether) by making several incisions in the margin of the gum, which had contracted over the entrance of the cavity. After obtaining free access into the socket and cleansing it well with carbolic acid and glycerine, and subsequently drying it, I pressed the tooth well up into its place. I took an impression in gutta percha and wax of all the upper teeth, holding the newly-planted tooth in place with a crooked instrument. From this I obtained a plaster model, over which I fashioned a plate of gutta percha to act as an interdental splint in retaining the tooth in place until a more permanent one could be made. This splint he wore one week, when I made him a permanent one of Holland's metal, which he wore until the tooth was reasonably firm. I saw the patient once a week for two months. He is now, after nine months, using the tooth as he did before the accident, and it seems as firm as any tooth in his mouth.

*About four months ago, a young man, aged about twenty-two years, called on me with a superior right lateral projecting out of the centre toward the lip, and interfering very much with his comfort. I examined his mouth and found every tooth perfect except this one, which was dead, though not decayed. There was a discharge down at the posterior portion of the root. I found that portion of the socket entirely gone and a foreign deposit on the root, which deposit I removed. I then drilled through to the pulp-chamber and cleaned it out. I treated it for a week or so, but did not seem to make any progress.

At the end of ten days I concluded that something more heroic must be done, and I told him I should like to extract the tooth and find out the cause of the trouble. He consented and I extracted the tooth. I found a calcareous deposit all round the root of the tooth and almost down to the neck, which I removed with a good deal of difficulty, and then filled the nerve-chamber with gutta percha, cut off a small portion of the end of the root, washed out a clot of blood that was in the socket with warm water, after which I took an instrument and wrapped some cotton round it and passed some chloride of zinc up into that portion of the socket that was diseased to stimulate it to healthy action. I again, after waiting a few moments, washed out the socket with warm

* Reported to the Dental Society of New York by Dr. W. D. Tenison.

water, re-inserted the tooth and tied it down with ligatures into its position. The result is that the young man has since suffered no inconvenience or pain of any sort, neither has there been any swelling. To all appearance the performance is a perfect success. The discharge has ceased entirely and the tooth is nearly as firm as any tooth in his mouth, the gum having grasped the tooth firmly.

It may be added that at the time the operation was performed the patient was under a physician's treatment for inflammatory rheumatism, which it would be supposed would endanger the success of the operation.

TEETH IN THE BLADDER.

THE following curious case is recorded by Herr Schlenker in the '*Deutsche Vierteljahrsschrift für Zahnheilkunde*:' The patient, a young married lady, had been for some time under the care of Dr. Kuhn, of St. Galle, suffering from gravel. Examination by the sound revealed a hard, immovable substance on the posterior wall of the bladder. Attempts were made to remove it by crushing, but without success. It was therefore resolved to perform lithotomy, an operation which resulted in the removal of a cyst containing a loose tooth, and two small free tufts of hair. The patient died of peritonitis a few days after the operation.

The cyst is described as weighing about an ounce; it contained a cushion of skin covered with short hairs, from which there projected a fragment of bone. This bone enclosed an upper temporary canine, surrounding it like an alveolus, and only allowing its point to be seen. The tooth was of normal form and magnitude, its enamel white and polished, and sharply defined from the neck; the root was perfectly developed, presented a slight longitudinal furrow, and was apparently not provided with any cortical substance.

Abnormal formations, like the above, says Herr Schlenker, are well known to occur in the uterus (v. Wedl's '*Pathology of the Teeth*,' p. 172), but it is obvious that such could not by any possibility primarily develop in the bladder. In the present instance, therefore, the cyst must have migrated from the uterus, as in many similar cases already published. The peculiarity of the case, however, consisted in the fact that such a migration had taken place without any pain or other symptom than the occurrence of gravel in the urine.

We know, however, that simple cysts, as well as other new formations, are able to produce the absorption of the sur-

rounding tissue; we also know that when the root of a tooth begins to grow, the soft dental sac opens a way for it by causing the absorption of the surrounding bone; and we may assume that an analogous process took place in the present case.

A HINT TO CHLOROFORMISTS.

UNDER this heading Dr. Adolfo Paggi publishes in the 'Lancet' short details of a case which he saw with Dr. Labbé, of Paris. The patient was to undergo operation for ovariectomy, and chloroform was administered. When the anæsthesia was complete the surgeon made his incision in the linea alba, through the skin and areolar tissue. Suddenly the respiration stopped and the heart ceased to beat, as clearly shown by the cessation of bleeding and the bloodless appearance of the lips of the wound. The mouth was cleansed from mucus, the tongue drawn forwards, the patient's head thrown well back, and artificial respiration was practised for quite ten minutes, but without result. The case appeared desperate, when Dr. Labbé put a large cloth in boiling water and applied it to the cardiac region. Instantly the heart commenced to beat, and the patient to respire. She was saved. The operation was not terminated. The cloth which had been applied was of such a heat that a large blister was raised at the seat of its application. Such simple and ever at hand means has succeeded several times with Dr. Labbé.

In the same number of the 'Lancet' the following account of a death from ether is recorded by Mr. J. J. Sangster, of Burra, S. Australia.

"On the evening of March 8th I was requested by my colleague, Mr. Brummitt, to visit with him a case of diphtheria, he having tracheotomy in view for the urgent dyspnoea that was threatening life. We decided that the only chance was in operation, and I proceeded to administer ether. The patient, a girl of six years, somewhat mentally deficient and of delicate habit, was labouring for breath. The pulse was fair. I used a cage inhaler, putting into it about half an ounce of ether. The inhaler was at first held some three inches from the face, so as to gradually accustom the child to the vapour. It was by degrees approached closer, and then placed over the nose and mouth. There was a good deal of struggling, but the patient soon became quiet, and seemed to be getting comfortably under its influence. I reported her as nearly ready, and my colleague placed her in tracheotomy

position. Having replenished the inhaler, I was proceeding with the administration when the breathing, which, though not very satisfactory, had been tolerably regular up to this moment, suddenly ceased. Artificial respiration was at once resorted to. The patient gave one gasp, and all efforts for restoration, though persevered in for some time, were unavailing; the heart could be felt feebly flickering for some two minutes after the breathing failed."

Dental News.

The Annual Distribution of Prizes to the Successful Students of the Medical School of the Dental Hospital of London, took place at Willis's Rooms on the 30th ult., too late for any report of it to appear in our present issue. Professor Owen, F.R.S., was to be in the chair.

Mr. EDWIN SAUNDERS, the President-elect of the Metropolitan Counties Branch of the British Medical Association, will deliver an address on "Specialism; and on the Influence of Medical Science on Modern Civilisation," at the meeting of the Branch at the Crystal Palace on Tuesday, July 12th, at 5.30 p.m.

A NEW Dental Journal, entitled the 'Dental Record,' is announced to appear on the 1st inst. It will be edited by Mr. Thomas Gaddes, and published by the Dental Manufacturing Company. It is intended primarily, of course, as an advertising medium, but there is no reason why a journal of this character should not aim at a high literary and scientific standard, and the name of the editor is in itself a guarantee that the 'Record' will be something more than a trade catalogue. At the same time we cannot but express the hope that that intimate alliance between the study and the counting-house which has already given birth to so many Dental journals here and elsewhere, may prove to be only a transient stage in the evolution of Dental literature.

A CASE has recently appeared in one of our medical contemporaries, which, though involving the opposite extremity of the alimentary canal to that with which the Surgeon-Dentist is most familiar, was of a nature to prove more amenable to Dental than to medical manipulation. A patient had somehow got a wine-bottle impacted in the rectum, and the problem was how to supply the *vis à fronte* necessary to extract it. The suggestion which naturally occurred to more than one correspondent, was to drill a hole in the bottom of the bottle and so obtain a *point d'appui*. Bewilderment seized upon certain unmechanical medical minds, who were unable to conceive of the possibility of drilling holes in glass under such delicate circumstances. It has, however, been happily brought home to them that a curious appliance, known as the "Dental burring engine," furnished with a diamond drill, is all that is required to solve this abstruse problem in mechanics.

MR. WALTER WHITEHEAD, of the Manchester Royal Infirmary, is endeavouring to collect and collate statistics bearing on epithelial cancer of the tongue, with the intention of utilising them in a paper to be read at the meeting of the International Congress in August.—*Med. Times and Gaz.*

THE happy possessor of any of the following qualifications may have them appended to his name in the Dentists' Register, by applying to the Registrar, and at the same time forwarding a fee of five shillings, and producing his diploma.

Fell., Mem., Lic., Ext. Lic., R. Coll. Phys. Lond.

Fell., Mem., R. Coll. Surg. Eng.

Fell., Lic., R. Coll. Surg. Edin.

Fell., Lic., Fac. Phys. Surg. Glasg.

Fell., Lic., R. Coll. Surg. Irel.

Mast. Surg., Univ. Camb.

Mast. Surg., Univ. Durh.

Bac. Surg., Mast. Surg., Univ. Lond.

Mast. Surg., Univ. Edin.

Mast. Surg., Univ. Aberd.

Mast. Surg., Univ. Glasg.

Mast. Surg., Univ. St. And.

Bac. Surg., Mast. Surg., Lic. Surg., Univ. Dubl.

Mast. Surg., Lic. Surg., Q. Univ. Irel.

WE have received the report of a paper on "Sewage," recently read by Mr. Hardie, one of our body, before the Alloa Society of Natural Science and Archæology. Mr. Hardie severely criticised the gross defects of our present sewage system, and traced the effects of imperfect drainage upon the health of communities. He considered the sewage question to be one of the most important reforms required in our country, at the same time condemning the indifference of the general public in matters concerning sanitary science and the maintenance of public health.

Drs. Czerny and von Langenbeck have recently been trying, for surgical purposes, a substitute for plaster-of-Paris, called tripolith. It was invented by Herr B. von Schenk, of Zurich, and has been patented. It is said to have properties which adapt it admirably to surgical uses; it is manipulated like plaster-of-Paris, but dries and solidifies more quickly.

THE following comparative statement of the courses of study required by the Royal College of Surgeons of England for the membership and the licence in Dental Surgery respectively appeared originally in the 'Medical Times and Gazette' for March 3rd, 1877, and was subsequently published both in our own pages and in those of the 'Monthly Review of Dental Surgery.' The latter journal, under its new name, has now again very opportunely republished it, and we gladly follow its lead, as we think the statement well worthy the attention of those who still persist in speaking of the Dental licentiates as "half-educated specialists."

Curriculum for the Membership.

1. An Examination in Arts.
2. Being 21 years of age.
3. Having been engaged in acquiring professional knowledge during four years.
4. Anatomy Lectures: 2 winter sessions.
5. Dissections: 2 winter sessions: 12 months.

Curriculum for the Licentiate-ship in Dental Surgery.

1. The same.
2. The same.
3. The same
4. The same or second special course on the head and neck.
5. 9 months.

Curriculum for the Membership.

6. Physiology: 1 winter-session.
7. Practical Physiology.
8. Surgical Lectures: 1 winter session.
9. Practical Surgery: 6 months.
10. 1 course of Chemistry (optional).
11. 1 course of Materia Medica.
12. 1 course of Medicine.
13. 1 course of Forensic Medicine.
14. 1 course of Midwifery.
15. 1 course of Pathology.
16. Practical Pharmacy and Vaccination: 6 cases.
17. Practical Chemistry.
18. Practice of Surgery: 3 winters and 2 summers.
19. Examination of patients: 3 months.
20. Clinical Lectures on Surgery: 2 winter and 2 summer courses.
21. Dressership: 6 months.
22. Post-mortem Demonstrations.
23. Practice of Medicine: 1 winter and 1 summer. Clinical Medicine.

Curriculum for the Licentiate-ship in Dental Surgery.

6. The same.
7. (Say) *Metallurgy*, 1 course.
8. The same.
9. See 18.
10. The same (imperative).
11. The same.
12. The same.
13. } 2 courses *Dental Anatomy and Physiology*.
14. }
15. } 2 courses *Dental Surgery and Pathology*.
16. }
17. The same.
18. 2 winters. *And two years' practice at a Dental hospital.*
19. (*At a Dental hospital*).
20. 2 winter courses.
21. } 2 courses of *Lectures on Dental Mechanics*.
22. }
23. } 3 years' *Practical Mechanical Dentistry*.

The subjects common to the two courses of study must in each case be attended at a recognised general hospital and medical school, and the subjects special to Dental Surgery (printed in italics) at a recognised Dental Hospital and School or the recognised Dental department of a General Hospital and School.

Four years is the time allotted to study for the Membership and for the Dental Licentiate-ship, and six years will not be more than sufficient for the acquirement of the two qualifications.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following gentlemen are announced as candidates for election into the Council on the 7th inst., viz.:—Sir James Paget, Bart., and Mr. Walton, for re-election; and of the following new candidates: Mr. John Whitaker Hulke, F.R.S., nominated by Messrs. Christopher Heath, E. R. Bickersteth, George Lawson, T. Pridgin Teale, Arthur E. Durham, and W. Marrant Baker; Mr. John Croft, nominated by Messrs. F. Le Gros Clark, John Simon, W. Marrant Baker, A. E. Durham, T. P. Teale, and T. H. Bartleet; Mr. Christopher Heath, nominated by Messrs. George Critchett, J. W. Hulke, T. P. Teale, W. P. Swain, W. M. Baker, and A. E. Durham; Mr. Reginald Harrison, Liverpool, nominated by Messrs. Alfred Willett, Oliver Pemberton, T. R. Jessop, T. W. Crosse, W. M. Banks, and Rushton Parker.

THE Nomination Committee (Sir James Paget, Bart., Chairman; Messrs. Birkett, Savory, Marshall, Wood, Forster, Hutchinson, the President, and Vice-Presidents) in pursuance of the resolution of the Council of the 13th May, have taken into consideration the regulations under which the Committee shall act in nominating candidates for election to College Examinerships, and have agreed to the following recommendations which were adopted at the meeting of the Council on the 9th ult.

I. *Constitution and duties of the "Nomination Committee."*—1. The Nomination Committee shall consist of seven members of the Council, together with the president and vice-presidents, and not less than three members of the committee shall be, or shall have been, members of the Court of Examiners. 2. The duties of the Nomination Committee shall be as follows:—(a.) To consider applications from candidates for the offices of Examiner in Anatomy and in Physiology, in Medicine, in Midwifery, and for the Dental Section of the Board of Examiners in Dental Surgery; to report thereon to the Council; and to recommend the candidates deemed fittest for election. (b.) To be visitors of the examinations in Anatomy and Physiology, in Medicine, in Midwifery, and in Dental Surgery. (c.) To make representations and recommendations to the Council respecting the aforesaid examinations. 3. The members of the Council appointed members of the Nomination Committee shall be ineligible for any of the before-mentioned examinerships.

II. *Notices respecting Elections and Mode of Election of Examiners.*—1. Notice of intending elections to the examinerships shall be advertised in medical journals not less than one month prior to the date of those elections; and candidates shall be invited to send in their applications to the secretary not less than fourteen days prior

to the date of election. 2. The secretary shall forward to each member of the Council a list of all the candidates applying for the office of examiner within seven days of the expiration of the period to which the application of candidates has been limited. 3. Every member of the Council shall receive notice of each meeting of the Nomination Committee for considering applications for the office of examiner, and shall be at liberty to nominate in writing to the secretary, before or at each such meeting, others than those applying as candidates for the said office. 4. The names of all candidates for the office of examiner, and the names of the candidates recommended by the Nomination Committee for the said office, shall be inserted in the notice issued to the Council for the meeting appointed for the election.

III. *Absence of Examiners.*—1. In the event of any examiner being, through illness or any other unavoidable cause, unable to take part in any examination, the Nomination Committee shall be authorised, on behalf of the Council, to appoint a substitute for such examiner, reporting thereon to the next meeting of the Council.

IV. *Number, Qualifications, and Duration of Office of Examiners.*—

1. The Board of Examiners in Anatomy and Physiology shall consist of nine members, to be appointed by the Council, to conduct the examinations in Anatomy and Physiology for the Membership and the Fellowship of the College. 2. The examiners in Anatomy and Physiology shall be elected annually from the Fellows of the College. 3. An examiner in Anatomy or in Physiology shall not hold office for more than five consecutive years, but after an interval of one or more years shall again be eligible for election. 4. The chairman of the Board shall be elected annually by the members of the Board, and shall be chosen from that section of the Board, either Anatomical or Physiological, of which the members shall at the time constitute the majority of the Board. 5. The four examiners in Medicine shall be chosen from the Fellows of the Royal College of Physicians, and shall be elected annually at the Quarterly Council in July. 6. An examiner in Medicine shall not hold office for more than five consecutive years, but after an interval of one or more years shall again be eligible for election. 7. The two examiners in Midwifery shall be chosen either from the Fellows of the College or from the Fellows of the Royal College of Physicians, and shall be elected annually at the Quarterly Council in July. 8. An examiner in Midwifery shall not hold office for more than five consecutive years, but after an interval of one or more years shall again be eligible for election. (N.B.—The regulation limiting the period of office for any examinership to five consecutive years may, upon special recommendation of the Nomination Committee and the approval of the Council, be suspended.) 9. A member or members of the Dental Section of the Board of Examiners in Dental Surgery shall, as provided by the bye-laws, be elected from "persons skilled in Dental Surgery," and shall hold office "for the period of five years."

DENTAL VACANCIES.

VICTORIA HOSPITAL FOR CHILDREN, Queen's Road, Chelsea, S.W.—Additional Dental Surgeon. Candidates

must be Fellows or Members of the Royal College of Surgeons of England, Ireland, or Scotland, or Graduates in Medicine of any University recognised by the Medical Council, practising Dental Surgery. Applications, with copies of testimonials, to be forwarded to the Secretary, on or before Saturday, July 9th.

The posts of Dental Surgeon to the Great Northern Hospital, and of Assistant-Dental Surgeon to the Middlesex Hospital are also vacant, but the date for sending in applications has expired.

APPOINTMENTS.

MR. JOHN ALLIN has been appointed Honorary Dentist to the Penitentiary, Embden Street, Hulme, Manchester, vice Mr. Pierrepont, deceased; and to the Manchester and Salford Provident Dispensary, Medlock Street Branch, Hulme, vice Mr. Marsh, deceased.

MR. J. HENRY WHATFORD, L.D.S. R.C.S. England, of Eastbourne, has been appointed Honorary Dental Surgeon to the All Saints Convalescent Hospital; and also to the Provident Dispensary.

Obituary.

WITHIN the month that has just passed the Dental profession has lost two well-known figures—Isaac Sheffield and William Donald Napier—both of whom died more or less unexpectedly and prematurely. Each occupied a distinguished position in the profession, though on different lines and for different reasons. Mr. Sheffield was a past-president of the Odontological Society, and must therefore be considered to have attained to the highest honour and recognition which it is in the power of the profession to bestow. Mr. Napier was practically the founder of the Association of Surgeons Practising Dental Surgery, and so far the inaugurator of a schism in the profession which can never be too much deplored. Though thus taking different positions in their relation to the profession, both were gifted with a large share of mechanical skill and practical knowledge, and both had earned the confidence of a large clientèle. With these introductory remarks we may pass on to briefly record the main points of interest in their several lives.

ISAAC SHEFFIELD, D.D.S.

Mr. Isaac Sheffield, of 2, Stratford Place, came of north country stock, having been born in Cumberland in 1816. His father was well known in the neighbourhood of Carlisle as a man of great force of character, and of considerable mechanical ingenuity, qualities which the son inherited in a marked degree.

After a prolonged and thoroughly preliminary education, Isaac Sheffield was apprenticed to a brother who was engaged in Dental practice at Exeter. After five years of a very successful pupilage, he commenced practice in London, where he gradually won and kept the esteem and confidence of a wide circle of patients. At the same time his undoubted skill and his sterling character gained for him the universal respect of the profession, till he reached the culmination of his career in 1873, when he was elected President of the Odontological Society. From that time his health gradually failed, but his death was not thought to be so imminent as it proved.

Mr. Sheffield will be widely regretted by the profession, to whose interests he was devotedly attached, and to whom he set a high example of rigid conscientiousness and high moral tone.

WILLIAM DONALD NAPIER, M.R.C.S.

Mr. William Donald Napier, who recently died suddenly at his residence in George Street, Hanover Square, to the regret of a large circle of friends, was one of the younger sons of Mr. Napier, the well-known engineer of Lambeth. His father was a cousin of Robert Napier, of Glasgow, whose great success in naval engineering and love of art in all its branches, made him one of the best known men in Scotland. Young Napier was originally intended for an engineer, but for family reasons was induced to give up this pursuit and to join the profession of Dentistry. With this view he became a pupil of Mr. Saunders, with whom he worked until he entered into practice at 22, George Street, Hanover Square, as the successor of Mr. Thompson. The great desire that Mr. Napier entertained of making himself thoroughly acquainted with the ground work of his profession, led him to enter as a student at St. George's Hospital, and in spite of the difficulties which necessarily attend those who are obliged to make time for the requisite studies in the intervals of active professional work, he succeeded in obtaining the diploma of the Royal College of Surgeons in

1858. Subsequently Mr. Napier interested himself greatly in the work of the scientific societies, especially the Medical Society, though his own contributions were not very numerous. The paper which attracted most notice at the time was one read before the latter Society in 1874, in which he advocated the treatment of exposed dental nerves with nitric acid, as a means of rendering them insensible, and so facilitating manipulations upon the teeth. In the same address he gave vent to his peculiar views on "specialism" as affecting his own profession. Few of us would find anything to complain of in the broad statement contained in the following extract:—"Specialism must exist. It has been a spontaneous and, I believe, a healthy growth consequent upon the expansion of science, the increase of population, the advancement of civilisation. All that I would argue is not that the specialist should cease to be a specialist, but that his preliminary knowledge should be as diffused as though a clear and distinct perception might at any moment be demanded of him of other subjects than that which he may make his prevailing study." That is a general statement to which most of his colleagues in the Dental profession would freely subscribe. It was not till he came to the practical application of his principles, and opposed the formation of special Dental hospitals, and the efforts of Dental Reformers, that the profession at last parted from him. Time will show—has already in some measure shown—which view was the more statesmanlike one, and it would ill become us now to dwell longer on the subject. Besides the paper to which we have alluded, Mr. Napier wrote on syphilitic teeth, and on certain instruments which he had devised for the treatment of the affection from which he was himself a sufferer—vesical calculus. Never of very robust health, Mr. Napier was frequently of later years incapacitated for work by his sufferings from this cause, which had no doubt a large share in leading to his sudden and premature death.

The characteristic for which Mr. Napier was most remarkable was his ready and fertile mechanical talent, a gift which was naturally of great use to him in his profession, and led to several inventions of more or less practical utility. Amongst these we may mention, his well-known saliva-pump, his method of stopping teeth by means of vulcanite and cement, and his india-rubber tooth-brush, the last a most successful and remunerative discovery. But the invention of which he was perhaps proudest in after life was his first essay in that direction, viz. a scheme for steering ships by steam, which is now universally applied to all large vessels,

Together with this mechanical gift, Mr. Napier possessed a wide acquaintance with all branches of technical knowledge, and this made his opinion an extremely valuable one in questions involving novel or doubtful principles. He also took great interest in art, and had brought together a valuable collection of paintings, porcelain, and wood-carvings, the last-named being the branch of art in which he was best known as a connoisseur.

We have already spoken briefly of the late Mr. Napier's relations to his own profession, with which, holding the views that we do, we naturally could sympathise but little. We trust that the victorious side will not retain too harsh a memory of an opponent, whose opposition, painful as it might have been in its results, was always honorably conducted, and we cannot do better than close the present brief memoir by admitting freely that the sense of right and love of truthfulness which distinguished the late Mr. Napier in all relations, deservedly gained him the respect of all who were intimate with him.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE INTERNATIONAL MEDICAL CONGRESS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Permit me to make known through your columns that all members of the International Medical Congress are cordially invited to inspect this hospital, which will be open daily from 9 a.m. to 7 p.m., during the session.

I am, &c.,

ARTHUR G. KLUGH,
Secretary.

National Dental Hospital,
149, Great Portland Street, W.;
25th June, 1881.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, or they cannot be published in the ensuing issue; they must also be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under :

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 Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

EDWARD H. BOWNE.—The case appeared in our issue of June 1st.

“A. C. G.” (Devonport).—If you will comply with our invariable rule, and send your full name and address, we will do our best to answer your question.

“ENQUIRER.”—A new edition is promised shortly; but the present one will sufficiently answer your purpose.

“M.R.C.S.”—If you are a German scholar, you will find an excellent description of what you require by Zuckerkandl, in Stricker’s ‘*Medizinische Jahrbücher*,’ 1878, Heft. iii.

Communications have been received from F. Comer (Torquay), J. W. Griffith (King William’s Town, Cape of Good Hope), Edward H. Bowne (Rocky Hill, New Jersey, U.S.A.), G. Murrell (Winchester), J. Henry Whatford (Eastbourne), J. Allin (Manchester), Thos. Fletcher (Warrington), Arthur G. Klugh (London), S. G. Goodrich (London), “A. C. G.” (Devonport), Dean of the Medical School, Dental Hospital of London, “Enquirer,” “M.R.C.S.”

BOOKS AND PAPERS RECEIVED.

‘The Alloa Advertiser.’ ‘El Progreso Dental.’ ‘Lancet.’ ‘British Medical Journal.’ ‘Medical Times and Gazette.’ ‘Pharmaceutical Journal.’ ‘Journal of the British Dental Association.’ ‘Chemist and Druggist.’ ‘Le Progrès Dentaire.’ ‘Preston Guardian.’

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

No. 324.

LONDON, JULY 15, 1881.

VOL. XXIV.

ON SPECIALISM: AND ON THE INFLUENCE OF MEDICAL SCIENCE ON MODERN CIVILIZATION.*

By EDWIN SAUNDERS, F.R.C.S.,
Surgeon-Dentist to the Queen.

GENTLEMEN,—Probably on no single occasion in my life have the graphic words of our great national poet come upon me in fuller force, “as when some well-graced actor leaves the scene, the eyes of men are idly bent on him who enters,” than now, when called upon to fill the place so worthily occupied by the distinguished physician who has just spoken his kindly farewell. And it may well be that for one who has misgivings as to his power of interesting such an audience as the present, the absence of enthusiasm, and the languid interest indicated by “the eyes idly bent,” may be more acceptable than glances, more ardent, but probably, also, more critical.

Suffer me again to express my sincere thanks for the honour you have conferred upon me in electing me your president, and also those of my *confrères*, who regard it with satisfaction, as drawing still closer the bonds of union between our specialty and the great body of the medical profession. It is not my intention so far to abuse the trust you have so kindly reposed in me, as to make this the occasion of opening up the politics of the profession; much less of making *ex parte* statements respecting recent legislative proceedings and the General Medical Council. Nevertheless, a simple, fair, and plain statement of what has, and what has not, been accomplished, will not, I trust, be thought inadmissible or wholly devoid of interest.

It is useless to disguise the fact that the splitting up of medical and surgical practice into departments or specialties has always been deprecated and discouraged by those corporate bodies which charge themselves with the maintenance of the educational standard, the honour, and the public reputation of the profession. And a strong case must

* Presidential Address delivered at the Annual Meeting of the Metropolitan Counties Branch of the British Medical Association, July 12th, 1881.

be made out for a departure from this rule, before such a proposition can have any chance of receiving the seal of official sanction. And the reasons for this jealousy of the disintegration of the profession are not far to seek. First amongst these is probably the apprehension that the educational standard might thereby be lowered; the limitation of the area in that wondrous microcosm, the human body, which falls under his charge, having a tendency to set bounds to biological research and general scientific attainment on the part of the specialist. Moreover, if the department of practice is one which involves, in its successful prosecution, large and constant demands of time, as well as physical fatigue, it must inevitably result that his mental vision will gradually become myopic, that he will begin to find himself trammelled by the routine of his daily work, and indisposed by his exhausted energies from disporting himself in "those fresh fields and pastures new," which were the charm and the dream of his student days. In fact, the specialist is not long in waking up to the consciousness that he has, by devoting himself to one particular kind of practice, set limits to his intellectual horizon, and done much to crush out any poetical aspirations which may have consciously been lying dormant in his soul. He has, indeed, become like those unfortunate birds, kept for the exercise and display of man's skill, whose wings being clipped become thereby disqualified for that higher range of flight which by natural structure and instinct they are otherwise fitted to enjoy. Another reason against specialism (though this is rather subjective, and is liable to the modifications of temperament and mental idiosyncrasy) is that, being habitually deferred to in his own special department, he is in danger of forming an exaggerated estimate of his value and importance in the social scale. To counteract any tendency towards this latter infirmity, there is no readier or more certain means than to become enrolled in associations such as that with which it is our privilege to be connected, where, measuring swords in friendly conflict, we may get to know where our real strength or weakness may lie. But after all has been said that can be urged, and all objections and arguments to the contrary notwithstanding, it is extremely improbable that special practice can ever be set aside. It is a tree of great age, having its roots in a remote antiquity, and still, in these modern days of the nineteenth century, pushing forth branches of undeniable vigour and beauty. In fact, it must be regarded as one of those natural products, which it is equally futile and impolitic to ignore, and which per-

sists in asserting itself as the legitimate outcome of the scientific growth and advanced civilisation of the age. How constantly do those who are most strenuous in their denunciations of specialism, resort in their own case, or in that of those in whom they are nearly interested, to those who (themselves sternly repudiating the name of specialist) are looked upon as the highest authority as regards the particular ailment in question. Do we not all in similar circumstances act on one unvarying principle? In lung disease does not the name of A. rise to our lips? For heart disease do we not go in quest of B., in epilepsy for C., in Bright's disease or gout or jaundice, is it not our first impulse to inquire whose opinion is of greatest value, as having had the largest experience and paid the closest attention to the symptoms and treatment of these cases respectively? And if this be so in medicine, much more is it the case with all that large class of ailments in which manipulative treatment and dexterity are necessary for their relief or cure. Here again we find theory and practice in opposition, for though we are bound to regard every qualified surgeon as duly equipped and accomplished for the performance of any operation whatsoever, who, amongst us, I would ask, would not rather have a voice in the selection of the operator in a case of cataract, or in passing the catheter? For there are hands and hands, some with fingers so well formed and endowed with so exquisite a sensibility as to be entitled to be called intelligent fingers, which seem to bring the inert material instrument they grasp into direct communication with the sensorium, and some so irresponsive to the will, and altogether so intractable as to debar the possessor from doing justice to his own attainments. And permit me to add that knowing, as I do, what, as Dr. Johnson might have said, the potentiality of pain is, in a carious tooth, I should most respectfully but most unhesitatingly decline the services of the most accomplished Member of the Royal College of Surgeons who had had no special training in the treatment of those organs.

And this avowal strikes the keynote of the present position of Dental Surgery, and furnishes the occasion of an apology or a statement of the *raison d'être* of a special diploma and a distinct register for that branch of surgery. In what has been advanced with respect to the prevalence of special practice, and in the cases which have been adduced with the view of showing that it is inherent in the complex civilisation of the present advanced state of society, no such sharp line of demarcation has been presented as to require a distinct curriculum or a separate examination. And for this simple

and obvious reason that the structures concerned are for the most part homologous, subject to the same physiological laws, amenable to similar treatment, and possessing considerable reparative or even reproductive power, the soft parts being abundantly supplied with vessels and nerves, and the bones being protected by membrane or integument enjoying vitality of a high order. But the practitioner of Dental Surgery having charge of organs possessed of great density, and encased in an envelope of crystalline hardness, of so low an organisation as to be at the mercy of chemical action or of mechanical lesion, and being extruded and exposed except at their articulating processes or roots, is under the necessity of employing a totally different class of instruments with quite other modes of operative procedure. This is not the time or place to open up the much vexed question of the nature and causes of decay of the teeth; for our present purpose, it will be sufficient to regard it as the result of chemical action, inasmuch as the invaluable operation known by the name of stopping, proceeds upon that assumption. A small fissure is observed in the grinding surface or other part of an otherwise healthy tooth, arising, it may be, from imperfect apposition of the enamel fibres, sufficient to allow of the infiltration of the secretions of the mouth with more or less *débris* of food. It is also not improbable that the subjacent dentine is imperfect, in which case the mischief will make rapid progress, the conditions favorable to the destruction of tissue by chemical action being present in the small external opening of the cavity, and the difficulty of removing the putrescent matters within. If this is allowed to go on unchecked, the walls of the pulp cavity being weakened or destroyed on the side of the lesion, the pulp becomes exposed; and it is fortunate if at this stage the most excruciating pain to which human nature is liable is not experienced. It is the business of the Dental Surgeon to prevent this, and to restore the damaged organ to health and efficiency; but however diligent he may have been at lecture, and however observant in the wards of the hospital, his surgical knowledge will stand him in little stead, and he must seek elsewhere than in the *Armamentarium Chirurgicum* for the appliances proper to the case before him. He will first proceed to enlarge by a drill or strong cutting instrument the external opening, so that no enamel fibres shall be left which are unsupported by sound dentine, and he will then proceed to cut away the carious bone with small delicate chisels, straight or bent at various angles according to the position of the cavity. He will then by careful packing of gold or plastic material insert a plug so perfectly,

that while possessing uniform density, it shall exclude moisture from filtering in at any point between itself and the parietes of the cavity. And where these conditions are fulfilled, a perfect plug inserted into the sound dentine, and with no roughness or concavities for the retention of putrescent organic matter, the destructive process is arrested for an indefinite time. It is here that the necessity for special training makes itself evident. The carious matter must be carefully removed, without recklessly penetrating the *cavitas pulpæ*, and the cavity must receive such a form as to retain the plug, which again must be so deftly inserted that it shall offer perfect occlusion without flaw and without undue pressure on the sensitive structure within. It will easily be understood that there are various subsidiary matters which want of time and the fear of exhausting your patience forbid me to touch upon, connected with the insertion of the plug or stopping; such as maintaining a dry state of the cavity and of the several portions of gold which have to be welded together, a good light in which to operate, and a chair so constructed as to place the patient in the required position without discomfort. Neither may we stop to inquire how it is that the living dentine can be made so tolerant of the close impaction of inorganic matter, or how it is that the different rate of expansion under varying temperature in the tooth-bone and the metallic plug, to say nothing of the high conducting power of the latter as regards heat and cold, does not lead to disastrous consequences. Suffice it to say, that notwithstanding these contingences, a very large measure of success is obtained by the operation known as stopping teeth, by which, as is probably within the experience of almost all here present, they are not only prevented from becoming sources of agonising and prostrating pain, but are made valuable aids to digestion, to health, and to the prolongation of life. Nor is it necessary to take account of complications arising from abnormal sensibility, whether of the dentine or of the exposed pulp, or of the minute attention to details of apparently minor importance, but not less essential to a successful result, to show that Dental Surgery can only be taught and practised as a special branch, and by technical professors. The case adduced in illustration is one of everyday occurrence, and whether regarded in reference to the manipulative skill required, or the time occupied, which may vary from half an hour to five or six, or even more hours, makes it quite incompatible with ordinary surgical practice.

Concurrently with a rapid and brilliant advance in the science and art of our specialty, due to a large extent to a wave of progress which reached this country from the other

side of the Atlantic, there arose an increasing demand for, and appreciation of, its services on the part of the public. And hence the necessity for an organisation of the profession forced itself upon the attention of those who might be supposed to feel an interest in its welfare. On such an important matter it was hardly to be expected that unanimity would prevail, and accordingly it soon became evident that there were two competing schemes, by one of which the surgical diploma was regarded as imperative and sufficient, while it was repudiated by the other as being of little worth and relevance.

What seemed certain was that neither alternative was adapted to meet the exigencies of the case, for although the possession of the diploma of the Royal College of Surgeons was felt to ensure a good social and educational standing, and so far to be advantageous, it could not be regarded as giving evidence of that special knowledge which has been shown to be necessary, inasmuch as the subject found no place in the examinations. On the other hand, to sever the connection of the specialty with general surgery, by the establishment of a college of Dentists, was regarded as a derogation, neither necessary nor desirable, from the position which it had hitherto enjoyed. Under these circumstances it was resolved to memorialise the Royal College of Surgeons on the subject, and to ask for a special diploma or licence to be granted on examination by a conjoint board consisting of half surgeons and half specialists, and for such modification of the prescribed course of study as should eliminate what was valueless and should substitute what would best meet the requirements of the case; so that in the result the educational standard should not be so much lowered as varied. And it was found, practically, that the points of contact were so much more numerous than those of divergence in the lines of study for the diploma for general surgery and for the licentiatehip of Dental Surgery respectively, that a yearly increasing number of Dental students has set the good example of possessing themselves of both qualifications. Nevertheless, it will still be found both convenient and advantageous that the surgical treatment of diseases of the maxillæ or of the soft structures in connection with the oral cavity, shall be confided to the practised hands of the pure surgeon. To borrow an illustration from the sister art of music, it would not be reasonable to expect that he who stirs our soul with the sonorous thunders of the organ should equally be able to hold us spell-bound with the "linked sweetness long drawn out" of the violin. An acquaintance with the science and theory of music must be the basis of

proficiency in both cases, but the attainment of high excellence in either can only be the reward of close and daily devotion to the selected one. So in the case in question, a knowledge of anatomy, physiology, and pathology is necessary as a common and firm ground in consultation, and as an aid in diagnosis in the protean forms of facial neuralgia. It is to the practised eye of the specialist that the insidious caries reveals itself before it becomes patent to the ordinary observer, and thus is the patient spared much suffering and much useless constitutional treatment. Or he may be able to refer the attack to exostosis, to malformation, to malposition, arrest of development, or retarded eruption of any particular tooth, with equally good effect. Such knowledge is also of conspicuous advantage in cases of hæmorrhage after extraction, whether traumatic or due to hæmorrhagic diathesis, in the management of anæsthetics, or in the more modern operation of replantation, in which—strictly following the lines of antiseptic treatment—teeth in a state of partial necrosis, and giving rise to suppuration, are removed, and after excision of the necrosed parts, are re-inserted in their alveoli.

Great, however, as was the advantage of the institution of the licentiateship of Dental Surgery, it was soon found to be an incomplete work, inasmuch as the powers conferred by it were of an enabling but not of a compelling kind. For the first time, indeed, in the history of the profession, a special institution was provided for the treatment of the diseases of the teeth on a sufficiently comprehensive scale; and also a school of Dental Surgery, where instruction was given by lectures and by clinical teaching, in accordance with a curriculum determined upon by the Dental examining board. But although advantage was taken of these facilities to a large extent by those who were anxious to practise their profession with credit to themselves and advantage to the public, yet in the absence of a register there was still no check to the intrusion of the unprincipled and the uninstructed. This has now been happily accomplished by the Dentists' Act of 1878, introduced by Sir John Lubbock, which forbids, under penalties, the use of the word Dentist, or any other title, by any one, implying that he is qualified to practise Dental Surgery, unless his name appears on the Register. And although, in its extreme solicitude for vested interests, the legislature has made it possible for a large number who had little or no ground to claim a place on the Register to enrol themselves prior to August 1st, 1879, when the Act should take effect; yet the fact stands, that only those who by a well-considered course of study, and by exa-

mination, shall have proved themselves duly qualified to practise the specialty, can henceforth be permitted to enter its ranks. This is what has been accomplished. Legislative sanction has been obtained for a scheme not directed to give prominence to the educated and qualified few, but to raise the whole body of the profession; not to accentuate the distinctive character of the specialty, but indissolubly to unite it to the great surgical body through the examining board of the Royal College of Surgeons. And if, by reason of legal technicalities and definitions, not always in harmony with the common understanding, the Register must still be encumbered with a large number of ineligible and undesirable names, consolation must be sought for what has not been accomplished, in the reflection that time which tries all things, will surely, though it may be slowly, redress this wrong.

Such is the present position of a branch of surgery which within living memory, has received a very marked and rapid development, and which is destined to play no unimportant rôle in the cycle of medical science, which has counted among its foremost practitioners men who would have won distinction in any calling:—Fox, Bell, Cartwright, Nasmyth, Rogers, Tomes, and many others, who were distinguished for their energy and skill in operations, or who have enriched the literature of the specialty by monographs, or by treatises of a scientific and practical character. Nor must it be forgotten that in its scientific aspect it did not fail to engage the great and original mind of John Hunter; and, coming down to later times, that it possesses a cherished treasure in the ‘Odontography’ of Professor Owen. Nor, lastly, must we ever fail to remember with feelings of the deepest gratitude that it was in the congenial soil of this specialty that that flower of sweetest perfume and of loveliest form, anæsthesia, arose to soothe and bless the sense and heart of man.

But enough, and I fear you will say more than enough of specialism. For the few remaining moments at my disposal, I will venture to permit myself a wider flight, and endeavour to recount some of those unrecognised benefits, which lie outside the healing art and the legitimate functions of the medical practitioner, for which society, in this latter half of the nineteenth century is indebted to medical science. Historians and divines are sometimes fond of speculating on the indirect influence of Christianity on modern civilisation, and on what might have been, had things turned out differently in certain crises of a nation’s history. A similar procedure with respect to what has been done in the way of diffusion of sound sanitary knowledge, by which sweetness

and light are brought to our homes, better hygienic conditions made prevalent, and the sum of human happiness indefinitely increased, would reveal a startling amount of indebtedness on the part of society to the medical profession. Is it credible that the sanitary condition of our metropolis, with its unparalleled density of population, could have been so satisfactory as it is, if the medical profession, with a wise prescience, had not taken the initiative in divers matters connected with the public health? To their efforts is it not due that intra-mural interments are abolished, and that the festering overcrowded city churchyard is replaced by the pleasant, flower-decked God's acre on the country hillside? And that in place of the reeking fever-bearing cesspool, London has a comprehensive system of drainage; a prodigious work which only awaits its ventilating shafts, carried up into the higher regions of the atmosphere, to render it complete. To the same disinterested source do we not owe what has been done in preventing the contamination of our atmosphere (in which direction, however, much still remains to be done) by freeing it from the fuliginous and deleterious fumes of chemical works and factories, injurious alike to the beauty of our buildings and to animal and vegetable life? Without this intervention on the part of medical science, would the Report of the Registrar-General have been of so congratulatory a character as regards increasing longevity, an enhanced power of enjoying life, a yearly diminishing death-rate, and a higher average standard of health? While the feats of daring and endurance in the way of Alpine climbing, swimming, walking, or athletic exercises, which throw into the shade the most heroic achievement of the past, furnish a sufficient answer to the sinister vaticinations of the pessimist, as to the growing degeneracy of the race. Again, to whom do we owe the universal adoption of the daily bath and the inculcation of the importance of a clean skin as a prime factor in physical health? or a recognition of the necessity of ventilation alike in living or sleeping rooms, and especially in schools, hospitals, and sick chambers? Who, again, is found in the front rank doing battle for vaccination, and thus saving fanatics from themselves? To whom are we indebted for warnings as to the insidious unsuspected and pestilential ways of sewer gas, and the means of saving us from their deadly influence? Who, undismayed by bigotry and prejudice, and the obloquy they incur, nevertheless persist in doing all that an enlightened humanity dictates to preserve our youth from the lethal and ineradicable taint of syphilis? To whom do we turn for measures to secure purity in our food, and for an abundant and

untainted water supply? While for better and more varied diet for breakfasts and dinners, with improved methods in the preparation of food, are we not debtors to our own "doctor in the kitchen?" Nor would it be easy to over-estimate the share which the exhaustive inquiries into the relative economic value of various kinds of food and stimulants have had in bringing about the temperance and moderation of modern dining customs. Indeed the increasingly important part which diet plays in the treatment of functional derangement of important organs, confers upon it a sort of therapeutic value. Again, who will refuse to acknowledge the amelioration in medical administrations in the way of tasteless and concentrated preparations of the modern pharmacopœia, as compared with the native undisguised nauseousness and bulk of drugs in use in former days, to say nothing of drastic measures and heroic doses?

Of the wonderful transformation in the ancillary art of nursing it would be presumptuous to speak after the able treatment which the subject received last year at the hands of my predecessor in this chair. But I will pause to pay a passing tribute to that noble-hearted lady and true woman who first made nursing an art and a cultus, and as pioneer in that good work went forth with a chosen band, into whose bosoms she had infused somewhat of her own humane enthusiasm, to soothe and tend the sick and wounded soldier in the Crimean campaign. Herself turning aside from the allurements of society and the blandishments of the London season, where she was well fitted to shine, she gave to the shattered inmate of the military hospital the tender care, the unwearying watchfulness, and the animating sympathy which a woman, and a woman only, knows so well how to bestow; kindling hope wherever hope was possible, and where human aid was powerless to save, receiving and transmitting the parting message of love to those dear ones in a distant and desolated home. Here was no epicene monstrosity seeking to usurp and over-ride man's natural position and prerogative, but an example of quiet, unobtrusive earnest work and self-abnegation, which will ever be associated with the undying name of Florence Nightingale.

Gratitude has been said to mean a lively expectation of favours to come, and in some such spirit I do not shrink from asking on the part of society that you will add to its obligations by demanding some further reforms which seem especially urgent. That every express train shall run at least one carriage which shall give access to a lavatory. You will be met by a flat refusal, but what boon due to

your advocacy was ever granted without this initial stage of negotiation. You will demand it in the interest of your patients, and of all delicate and highly organised natures to whom the hurry, the excitement, and the exposure of wayside stations must be fraught with danger and discomfort. A very slight acquaintance with the subject will convince the most sceptical that the difficulties resolve themselves into a question of expense, as it is simply necessary to make one of the seats movable so as to allow a passage through the various divisions of the carriage. Society also begs your good offices in introducing a better and more frequent cleaning of our streets, more especially those which have asphalted or wood paving. In these there being no earth to mix with the droppings from the horses, whereby the manure is to a certain extent diluted and deodorised, it becomes desiccated and pulverised, and is blown into the eyes and air passages in all its repulsive and disgusting pungency to the great detriment of health and comfort, or in wet weather renders the road dangerous. The even surface and the absence of detritus of granite and sand facilitate the cleaning process, which may be easily done by the sweeping machine, or by hand labour, as in the City of London, and by receptacle stations or posts. And this might also be done at a very small, or even at no expense, by being systematically collected and distributed to the market gardens, where it would be in great demand. Yet another boon society seeks at your hand, that its public buildings, churches, theatres, and concert rooms, should receive fresh supplies of air warmed in winter by passing over hot water pipes, and cooled in summer by being driven over troughs or tanks of freezing mixture. This also is perfectly easy of accomplishment, if in the interests of health it be urged upon the attention of the architect by the medical profession. By this simple arrangement, a modification or development of the improved ventilation of the present day, the headaches and malaise at present inseparable from crowded gatherings might be at least mitigated if not altogether removed. And pending this improvement, you are besought to put your veto on the objectionable practice on the part of caretakers of such buildings of closing the doors as soon as the audience shall have left, so that the effete atmosphere is preserved for the the poisoning of the blood of the next occupants. And lastly, society asks the authority of your powerful voice to remedy the deleterious atmosphere of the underground railway. The time may come when steam power will be replaced by electricity, but this may be a doubtful improvement. The true remedy is the substitution of compressed

air which, when it has done its office in driving the engine, regains its normal density, and provides a respirable atmosphere in the tunnel. Thus not only would the contamination of the air by the combustion necessary to generate the steam be avoided, but a continuous supply of pure air be injected into this otherwise invaluable artery of communication. Air compressed into cylinders by an air-compressing engine worked by the tide at the Charing Cross bridge, by means of a water-wheel, would make the cost little, if at all, greater than the present pestiferous arrangement. Gentlemen, I may have exhausted your patience, as, indeed, I fear may be the case, but I shall not have exhausted the list of good works of disinterested practical philanthropy of incalculable value in human progress and welfare which society has received and is receiving at the hands of our noble profession; but which earn little or no recognition other than the sweet incense of an approving conscience. The opportunity of doing what in us lies to help forward the great work of human progress is restricted within very narrow limits. Life has been defined as a sentence of death with, at the best, some few score years of respite; and, grim as the definition seems, who can dispute its essential truth? But shall this consideration paralyse our efforts, and extinguish our aspirations? Rather should it quicken our good impulses, and nerve our arm, knowing how soon the night comes, and remembering that

“ We are such stuff
As dreams are made of, and our little life
Is rounded with a sleep.”

ON SYPHILITIC AND CANCEROUS ULCERATION OF THE TONGUE.*

By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical
Surgery.

(*Concluded from page 619.*)

ALL hæmorrhage having been checked, the two halves of the jaw are to be brought together with a piece of stout silver wire. This may be passed from before backwards readily enough through the hole in one side of the jaw; but it is not easy to pass it back again on the opposite side, unless a loop of thin wire be passed from before backwards

* A Clinical Lecture delivered at University College Hospital on May 16th, 1881.

through the hole already made, into which the end of the wire can be bent, and thus drawn forward. The two halves of the jaw should be brought into close and correct apposition, and the ends of the wire twisted and brought up beneath the lip. The lip is then to be brought together with hare-lip pins and a fine silk stitch in the mucous membrane; but care should be taken to leave the lower part of the incision open, so that there may be a free drain for the saliva and discharges from the mouth. In removing the wire from the jaw at the end of three weeks or more, it will be found convenient to cut the wire close to the jaw on each side, and then with a blunt hook to pull out the loop from behind.

When the disease involves the anterior part of the tongue, it is by no means uncommon to find the organ adherent to the incisive portion of the jaw, and the bone more or less infiltrated, as shown by the loosening of the teeth and softening of the bone. Under these circumstances it is necessary, after clearing the bone, to apply the saw on each side of the diseased portion as far from the median line as may be necessary to reach healthy bone. After removal of the portion of bone with the diseased tongue, it is quite useless to attempt to wire the remaining portions of jaw together, since it is impracticable to draw them into apposition at the time. And yet it will be found in a few weeks that, as the wound heals, the two sides of the jaw are gradually approximated by the action of the muscles, and will eventually, in many cases, unite firmly. (For cases, see 'Lancet,' 1876, vol. i.)

In all operations for removal of the tongue it is well to be prepared for unexpected hæmorrhage, which may be very urgent. Blood collecting in the pharynx may embarrass the breathing very much, and, by the congestion produced, may keep up venous bleeding. Under these circumstances it is well to perform laryngotomy at once; and, if blood have entered the lungs, as is very apt to happen when the tongue is dragged forward, to suck out the blood through the tube. I have twice seen patients rescued from eminent danger of suffocation in this way, ultimately making good recoveries.

With a view of obviating all risk of suffocation during the operation, and also to facilitate the administration of the anæsthetic, recourse may be had, before commencing the operation of removal of the tongue, to laryngotomy or tracheotomy and the use of Trendelenburg's tampon. This consists of an india-rubber tube covering the tracheal cannula, which can be inflated so as to plug the trachea and prevent the admission of blood; but an equally satisfactory

method is to plug the pharynx with a sponge, to which a string should be attached. A flexible tube attached to the ordinary tracheal cannula allows the ready administration of chloroform vapour. I have employed the method on one occasion, and have seen it employed on others; but it appears in most cases to be an unnecessary complication.

The after-treatment of cases of removal of the half or entire tongue consists in maintaining the strength of the patient by judicious feeding, and in keeping the mouth sweet. Feeding is best accomplished with the ordinary earthenware feeder, having a spout to which an india-rubber tube may be fitted, if it be necessary to carry the food very far back. In this way sufficient milk, beef-tea, and brandy may be administered until the patient prefers to take nourishment from a cup, which he does often earlier than might be expected. Should the feeding by the mouth be insufficient, recourse should be had to nutrient enemata.

With regard to cleanliness and prevention of fœtor, it is very desirable that, at the time of the operation, all divided tissues should be thoroughly mopped with a forty-grain solution of chloride of zinc, which not only obviates fœtor, but tends powerfully to prevent the absorption of septic matter.

The frequent washing out of the mouth with a lotion of permanganate of potash or lime (the latter by preference) is most readily accomplished with a syphon-douche fitted with a soft india-rubber nipple, which the patient can direct himself without risk of hurting the mouth. After each washing the mouth should be brushed out with the glycerine of carbolic acid or "terebene," either of which answers admirably in preventing fœtor.

It has been suggested that the lobular pneumonia which occasionally proves fatal in some cases of removal of the tongue, is due to septic influence consequent upon the state of the mouth. The cases which die occur, however, among elderly patients, who have become greatly reduced by the disease, and who would be likely, under any circumstances, to suffer from lung complications of a low type. With the view of obviating this supposed septic influence, my colleague, Mr. Arthur Barker ('Lancet,' August, 1879), has in a few cases allowed the patient to wear a tracheotomy tube for some days, and to breath only through it; the mouth and nostrils being carefully covered with cotton-wool, and a drain for saliva established through the floor of the mouth.

In cases of recurrence, after removal of the tongue for epithelioma, the disease shows itself in the stump, or the submaxillary lymphatic glands; or more frequently, I think,

in both. The infiltration of the glands occasionally spreads to those beneath the sterno-mastoid, should the patient survive sufficiently long; but death usually supervenes, after a few months, from general asthenia and exhaustion, the sufferer being worn out with pain, and by the constant discharge, should the submaxillary lymphatic glands suppurate and discharge externally, as they frequently do. In cases where recovery is permanent, and the patient remains well for years, one is almost tempted to suspect a mistaken diagnosis; and it must be acknowledged that mistakes have been made by good surgeons in removing tongues, the subject of gumma, for examples of epithelioma. I am able, however, to record survival for over twelve years, in a patient from whom I removed what was believed to be a tongue affected by medullary cancer. The patient was sixty years of age, and the disease had existed six months. On looking into the mouth there was, between the tongue and the lower jaw, on the left side, a ragged ulcerated surface occupying the floor of the mouth. This was prolonged to the side of the tongue, and, with the finger, a large mass could be felt in the substance of the organ, extending beyond the median line and to about two inches from the tip. The patient complained of constant pain in the tongue, but was otherwise in good health. There was a slight enlargement of one of the submaxillary lymphatic glands. After section of the lower jaw in the median line, I removed, with the *écraseur*, the anterior half of the tongue in September, 1868. The patient made a good but slow recovery, and called on me in 1880, nearly twelve years after the operation, perfectly well. The part removed was exhibited to the Pathological Society of London, and was submitted to the Committee on Morbid Growths. To the naked eye, the tumour presented the appearance of medullary cancer, and was reported by the Committee to consist of cells and nuclei. The conclusion drawn was as follows:—"The opinion we formed is, that the tumour was essentially a cell-growth invading and displacing the normal tissues, the cell-growth forming equally the more obvious cell-structure of the tumour and its fibrous portion. We may add, that it seemed to us most probable that the larger forms of cells were developed out of the smaller forms, and that therefore the spongy portion of the tumour, in which the larger cells were most abundant, represented a later phase of development than the homologous portion" ('Pathological Society's Transactions,' vol. xx). In this case, I noticed particularly a point which is not often seen, viz. the extent to which the portion of tongue left behind grows or becomes stretched.

Notwithstanding the extensive removal, the man, some years afterwards, appeared to have a normally sized tongue, but rather more sessile in the mouth than usual.

When recurrence of cancer takes place, the case is generally beyond surgical aid, the disease infiltrating the tissues of the mouth and of the neck to an extent which usually forbids any interference. It seems to me, however, that occasionally an attempt should be made to rescue the sufferer from an early and miserable death, as in the following instance :

A man, aged 62, was sent to me in 1875, with very extensive cancerous disease of the tongue and sublingual tissues. In January, 1874, he noticed a swelling of one of the submaxillary glands, and soon after a sore beneath the tongue. The sore healed, and the gland subsided under treatment. In September, 1874, the gland began again to swell, and at last broke. At the same time, he found that he had difficulty in articulating, as the tongue was fixed to the floor of the mouth, and, eventually, the tip of the tongue became fixed to the jaw. This last was temporarily relieved by an operation at another hospital. On admission to University College Hospital, the patient was unable to protrude his tongue or move it in his mouth ; the saliva constantly trickled away, and articulation was very imperfect. He complained of great pain in the occipital region, but of none in the tongue. The gums of the incisor region were swollen and ulcerated, and the teeth loose. The tongue was fixed to the back of the incisive portion of the jaw, which was softened. All the tissues beneath the tongue were indurated, but the skin was not involved.

On September 29th I removed the tongue, the centre of the jaw, and all the sublingual tissues, by dividing the skin in the middle line, then sawing the jaw through on each side, and, having isolated the tongue somewhat on each side, by enclosing the whole of the disease with the wire of the galvanic *écraseur*. The parts removed consisted of the middle three inches of the lower jaw, nearly the whole of the tongue, and the sublingual muscles and glands *en masse*. At the posterior end, the mass measured two and a half inches in depth, and slightly more from side to side. The tongue appeared to be healthy, except at the anterior part ; and on the left side, just behind the tip, was a nodule of the size of a pea. Beneath the tongue was a mass of a yellowish-white firm tissue, with a granular surface, which was continued quite up to the cut margin. This tissue, on microscopical examination, proved to be epithelioma.

The patient made a good recovery, and was alive and well two years after the operation. He recovered a sur-

prising amount of power of deglutition and speech, due principally to the growth of the stump of the tongue already noticed. The occipital pain complained of by the patient is difficult of explanation, but was entirely relieved by the operation. I have noticed it in other cases of cancer of the tongue ('Lancet,' 1876, vol. i).

My friend and former pupil, Mr. Rushton Parker, of Liverpool, has recorded ('Medical Times and Gazette,' December 1st, 1877) two cases in which he performed almost as extensive operations as in the foregoing case. In one patient, aged 58, he removed, in 1876, half the tongue, parts of the upper and lower jaws, the submaxillary glands, and a portion of the pharynx, for extensive epithelioma, the patient recovering, and being perfectly well in 1880. In the other patient, aged 54, he removed one half of the tongue, half the soft palate, the side of the pharynx, the submaxillary glands, and part of the lower jaw for epithelioma; but, unfortunately, a recurrence of the disease took place in the neck.—*British Medical Journal*.

Hospital Reports and Case-Book.

REVELATIONS UNDER ETHER.

By TOM BIRD, M.R.C.S.,

Instructor in the Use of Anæsthetics to Guy's Hospital.

My first case of ether mania was that of a man between forty and fifty years of age, who had undergone a simple operation for which he required to be deeply anæsthetised. Chloroform was denied him—reason unassailable. Gas and ether had been used, the operation lasting from ten minutes to a quarter of an hour. For two hours he literally confessed; as he expressed it in the evening—"I knew what I was saying perfectly. I knew that I ought not to say it, but I could not help it, and you ought not to have left her" (the nurse) "in the room." He was right, but I did not know why, until I met with my second case some eighteen months afterwards. It was that of a young married woman, a hospital patient, whom I saw from half an hour to three-quarters after the operation. She was recounting to her mother (not^{re} present), in the clearest tones, subject-matter

that I do not think she would have ever confided, if conscious; it was a subject that had evidently been laid by in memory. For a quarter of an hour I tried to divert in every way her attention to her present condition, insisting that her mother was not present, without the slightest avail; she was totally oblivious of everything but her story. The patient was a lady of education and refinement, and her language had not the slightest fault in its expression, but her bedroom was a "Palace of Truth."

There is not the slightest connexion between the symptoms of these two cases and the ramblings of chloroform, which are disconnected, illusory, and easily diverted, occurring mostly during administration; or the gibberish of methylene bichloride, the latter is not even noisy; but this ether mania is a noxious thing, and the lesson I would draw is that the patient should be left only in the care of a discreet and responsible nurse until all self-control returns.—*Lancet*.

RETARDED ERUPTION OF THE LOWER WISDOMS.

By JAS. HARDIE, Alloa.

MRS. T—, a married woman, aged 27, said she had been under medical treatment for about two months for a swelled cheek; the mouth had gradually closed up, until she could not eat anything; she got very weak, and was entirely confined to bed. She was ordered different kinds of medicine, but all to no purpose, and was at last told to poultice the cheek. Pus formed, and at length burst through the cheek. On first consulting me she looked very weak and exhausted from want of proper nourishment. I examined the mouth as well as I could under the circumstances. I found she was unable to open the jaw more than three eighths of an inch, from the contraction of the masseter and pterygoids, and that there was no room behind the second molar for the eruption of the wisdom. As there were no signs of the latter, and no decay in any of the teeth, I concluded that the wisdom was below the second molar, and felt certain this was the cause of the disturbance. I told her to go home for a couple of days, to foment the mouth well, and take one dessert-spoonful of castor oil each day, and nourishing diet, such as strong home-made beef tea. In three days she returned; there was slight improvement, the space between the front teeth being now three quarters of an inch. I at once decided to endeavour to extract the second molar under

the gas. As soon as she was under its influence I inserted the forceps, and having with a little force opened the jaws sufficiently to enable me to pass the forceps into position, I managed to extract the tooth. Seeing there was no appearance of the wisdom on the left side, I told her, in case she should find it threatening to be troublesome, to be sure to come at once and have it examined. In a month or two she returned. I examined the mouth and found it in exactly the same state as when I extracted the tooth on the right side. I at once gave her the gas, and, as in the former case, was quite successful.

CASE OF REPLANTATION.

F. K—, a young man of 19, presented himself at the Free Dental School of Paris, on March 6th, 1881. Six weeks previously he had received an injury which led to caries of the left upper central and alveolar abscess. With the view of giving free vent to the matter and saving the tooth, the alveolus had been perforated and treated with carbolic acid, but the result had been unsatisfactory; and when the patient came under observation a part of the labial surface of the crown of the affected tooth was found hollowed out. There was inflammatory redness and swelling of the gum covering the anterior aspect of the alveolus, with a certain amount of suppuration. M. Poincot accordingly extracted the tooth, washed out the alveolus and plugged it with cotton wool. The apex of the fang was then removed with cutting pliers, and the pulp cavity and root canal cleansed, and the degenerated periosteum cleared away. The cavity and canal were treated with chloride of zinc, and a piece of artificial enamel fixed by a platinum pivot to the carious surface of the crown. The tooth was then soaked in a warm solution of carbolic acid, and surrounded by a silk thread, while the plug was removed from the alveolus. The tooth was then replanted, and secured by the silk to the adjacent teeth; after which the gum was painted with a mixture of equal parts of tincture of aconite and tincture of iodine.

The operation lasted one hour, and was followed by no evil results. Six days later the inflammation had subsided; at the end of a fortnight the fistula had healed up, and a month after operation consolidation was complete.—*L'Odonologie*.

CASE OF REFLEX IRRITATION FROM A CARIOUS TOOTH.

By H. U. OLVER, L.D.S.I.

A FEW days ago a young lady came to me complaining of toothache, and referring the pain to the upper right second bicuspid. Upon examination, the gum above this tooth was found to be inflamed and tender, with a discharge of pus. Everything seemed to indicate alveolar abscess. The tooth, however, was but slightly decayed, the pulp cavity not being in the least involved; its sensitiveness, moreover, to the engine drill, sufficiently indicated its vitality. I accordingly examined the other side of the mouth, and found the upper left second bicuspid with an unmistakably dead pulp. There was no pain or tenderness, however, about this tooth, but I cleared the pulp cavity, subjecting it to the usual treatment. The patient left promising to call again. The following day a telegram arrived for me, saying that my patient had fallen down in a fit, and requesting me to see her. When I called, I decided—apart from the fact of the discharge being on the right side—to extract the tooth on the left. This being done, the result was a subsidence of all the symptoms—pain, swelling, and discharge all gradually ceasing. In this instance not only pain but swelling and suppuration ensued as a result of reflex action. Are such cases common?

Henrietta Street, Cavendish Square, W.

VICARIOUS HÆMORRHAGE FOLLOWING EXTRACTION.

THE following case, by Herr Kahnd, is from the 'Deutsche Vierteljahrsschrift.' The patient was a young girl of fourteen. Eight days after the extraction of a tooth, very profuse hæmorrhage from the alveolus set in; the menstrual discharge, which had commenced the day before, being, thereby reduced to a minimum. The hæmorrhage was arrested by the usual means, upon which the menstrual flow returned.

British Journal of Dental Science.

LONDON, JULY 15, 1881.

“OURSELVES.”

THE BRITISH JOURNAL OF DENTAL SCIENCE has just completed its first quarter of a century, the first number having been issued in July, 1856. During that time it has witnessed many changes in the profession which it claims in some measure to represent; and for those changes its directors may not unfairly claim some small share of credit. The Dental profession, from being a formless mass of unorganised material, as it was when this Journal was first started, has at length achieved the first condition of vitality—organisation. Some say, and perhaps justly, that it is as yet a low state of organisation, that there must be a higher differentiation of function, a withering away or lopping off of certain redundant and not very efficient members, before the profession of Dentistry can claim a place beside the older and more perfectly organised professions. Still the fact remains that a Dental Journal has now to address a body of men whose standard of education and intelligence is considerably above that to which this Journal had to appeal in its earlier volumes. The influence of the Odontological Society—an institution with an origin very nearly synchronous with our own—the encouragement given, not always ungrudgingly, by the Royal College of Surgeons, and the perseverance and persistency of a few of our leaders in their efforts to secure State recognition for the profession have all been important factors in this change and should have free recognition for the parts they have severally played. But none of these, either separately or combined, could have attained success had it not been for that general spread of intelligence and

awakening of interest which has left its traces on every profession and on every science. It is not merely the fact that a Dentist's Act has been passed and a Dental Register published which makes the task of a Dental Journal so much more onerous now than it was twenty-five years ago ; it is the onward tramp of the sciences, the widening of each man's range of interest, the higher development of each man's critical faculties, that now impose on us fresh burdens and offer new rewards. For a journal to succeed in the only way in which success is worth having it is necessary that it should place before itself a higher standard of excellence than even its most exacting readers require. If it keep not ever in the van, it will soon find itself jostled by the camp followers.

So much we have said in the hope of convincing our readers that we are fully alive to the new conditions under which the journalism of Dentistry must henceforward be conducted in this country. This Journal has recently passed under new management, and it will be our main effort in the future to show that, while adhering to the lines of policy which have hitherto approved themselves to the body of our readers, we shall leave no stone unturned to attain a still higher standard of excellence, and if possible a still more rigid rule of conduct. For it is not to be denied that with new responsibilities come new temptations, and that a policy of INDEPENDENCE and LIBERALITY becomes increasingly difficult to maintain amidst the intellectual and commercial rivalries that mark the present era of Dentistry. So much the more necessary is it, however, to have and to hold a definite policy, even if that policy involve, in the general interest, a certain degree of isolation. Our policy in one word is one of FREEDOM, an idea connoted by both the terms of our motto. Under "independence" we claim and shall continue to claim for ourselves that freedom which under "liberality" we willingly give and shall continue to give to others. Bound by no tie either to any association or to any company, admitting no allegiance except to the demands of our own conscience and the requirements of our readers, we wish to live in amity with all, extending to the opinions and consciences of others the same forbearance which we expect for our own.

We shall not scruple to criticise freely whatever views, and whatever course of conduct seem to us to be prejudicial to the general welfare of the profession or the public, and we shall hope to accept gratefully and to profit by whatever criticism may seem to us to have been justly passed upon ourselves. And if we cannot expect from our competitors the same *independence* of view or action as we strive after ourselves, we hope that our *liberality* will enable us to make full allowance for conditions which are inseparable from their very existence.

In our expressed opinions it will be our aim not merely to be honest, but—what in medical journalism is a much more difficult, if not an unattainable ideal—to gain credit for honesty. And while so far as our general course of policy and conduct is concerned we shall adhere strictly to the motto we have inherited, in other respects we shall strive to adapt ourselves to the new requirements which the advance of science and the general improvement of Dental literature impose on us. We shall hope to retain the favour of those old contributors who have for years past provided us with original matter, while at the same time trusting to the younger members who are yearly being added to the profession to add their fresh blood to ours. We wish to see the experience of the old and the research of the young equally represented in these columns. At the same time it is our intention to pay especial attention to that portion of the Journal which, if secured with less effort, is not less valuable to our readers, viz. extracts from the large current literature of the profession. These extracts will be selected with care from every source, and will be edited with all the critical acumen at our command. Another department to which we hope to devote particular care is the examination and reporting on new appliances and materials introduced to the profession—a department which, from our independent position, we ought to be able to render as valuable as we intend it to be candid. Lastly, it is our intention to open a special column for the discussion of topics in which our readers may feel that they either require or can supply useful information. With this programme we hope under the new

management to secure the same amount of favour and a continuance of the success which have been vouchsafed to this Journal during the first twenty-five years of its existence.

MR. SAUNDERS ON SPECIALISM.

IN the thoughtful and scholarly address which he delivered at the Crystal Palace on Tuesday last, Mr. Edwin Saunders dealt with a subject which has not been without fascination for some of the greatest minds of the century. It is only a few years since Mr. Gladstone, in addressing the students of the London Hospital, warned them of the dangers of cultivating specialties. The tendency of the division of labour, he said, was to change men into stunted and deformed human beings; to be healthy the mind and body should be thrown into all attitudes and exercised in all capabilities. That is a very important and quite incontrovertible truth, admirably adapted for the subject of a school thesis :

“ *Ut pueris placeat et declamatio fiat;*”

but not of much practical import in this work-a-day world. Specialism may ruin the specialist, but so long as he serves their purpose, his fellow citizens will reck little of that. The subjective influence of specialism, even if proved disastrous, would not for a moment engage the thought of a public intent on profit, health, or pleasure. Mr. Saunders has evidently grasped this truth for he carefully omitted dealing with specialism from its subjective side.

From the objective side almost every argument is in favour of specialism, and what is more, the objective arguments in its favour are strongest just where they are most wanted, *i. e.* where there is most to be said against it from the subjective view-point. The most defensible form of specialism is one of art rather than science—a specialism of mechanism rather than a specialism of knowledge. It is to this form of specialism that one’s mind at once flies when the subject is mentioned—the specialism of the lithotrite, of the laryngeal forceps, of the excavator. It is a specialism which is abso-

lutely necessitated by the very condition of things, and yet it is the form of specialism which is most likely to divert energy from the more purely intellectual centres and so to interfere with the comprehensive development of the organism. Specialism of knowledge, on the other hand, while less absolutely necessary from the public point of view, is also less detrimental subjectively; since, however small the area of study, the faculties one brings to it are the same in *kind*, or, to borrow the phrase which Mr. Saunders has so happily employed in another sense, are *homologous* with the very faculties which have produced the most successful and far-reaching of scientific generalizations.

So much for the general question of specialism; and perhaps if there were no more to be said for the specialism of Dentistry than is to be said for any of the hundred specialties that have their origin rather in the misguided views of patients than in the requirements of science, we might tremble for our very existence. But Dentistry is the one specialty against which modern progress has left not a single word to be said. It is the one specialty which stands in need of no apologist. And yet we may be grateful to Mr. Saunders for adding a cogent, and we believe, an entirely new argument in its favour. Nowhere have we seen the heterology of the teeth as compared with the other tissues of the body put forward so lucidly and distinctly as in Mr. Saunders' address. The fact is practically familiar to everyone who has to deal with the oral cavity, but it looks quite different when scientifically formulated. The time is happily past when everything was sacrificed to a craze after a so-called "unity of nature," and scientific men tried to express everything in terms of a vertebra or a leaf. Still it is well to be reminded sometimes that nature is quite as fond of the heterologous as the homologous, and our thanks are due to Mr. Saunders if only for so opportunely reminding the medical profession of the fact.

It is proposed that the Dental Section of the International Medical Congress should hold a joint meeting with the

Section of Diseases of Children on the afternoon of Friday, August 5th, in order to discuss a paper by M. Magitot, entitled, "Sur l'érosion dentaire (honeycombing of the teeth) considérée comme une signe retrospective de l'éclampsie infantile." The paper, it will be seen, deals with a subject which is already on the programme of the Dental section, and it is a pity that it was not originally contributed to that section. However, we doubt not that M. Magitot's name, well known as it is in connection with researches on Dental development, will attract a large audience, and that the joint meeting, if it can be arranged, will be a most complete success.

THE election to the Council of the Royal College of Surgeons, England, took place on the 7th inst., when Sir James Paget, Mr. J. W. Hulke, and Mr. Christopher Heath were chosen. The numbers of votes given to the several candidates were as follows:—Sir James Paget, 228 votes, including 1 plumper; Mr. John Whitaker Hulke, 137 votes, 8 plumpers; Mr. Christopher Heath, 133 votes, 5 plumpers; Mr. John Croft, 113 votes, 18 plumpers; Mr. Reginald Harrison (Liverpool), 87 votes, 12 plumpers; Mr. Haynes Walton, 72 votes, 5 plumpers. The Dental profession will view with especial pleasure the election of Mr. Christopher Heath, who, besides being connected with both the Metropolitan Dental Hospitals, has devoted so large a share of attention to diseases of the jaws and oral cavity.

WE record with regret the death of Mr. F. Ouvry, partner in the firm of Farrer and Ouvry, and for many years the legal adviser of the General Medical Council.

"L'ODONTOLOGIE" is the name of a new journal which has just been started in Paris as the official representative of the "Cercle des Dentistes," and of the "École dentaire libre." It has for its motto the words "Union—Progrès," and pro-

fesses to be independent of all outside influence, pecuniary or moral, being—in the terms which the youngest of Dental journals has just borrowed from the oldest—"devoted to the interests of the profession."

THE City of Vienna has always had a delightful reputation as a home of pleasure, but the following statistics, culled from the Annual Report of the Civil Administration of the City for 1880, give one quite a new idea of the preponderance of its pleasures over its pains. The population within the municipal boundaries is 705,668; and during the year there were 12,659 popular concerts, besides 8451 performances of dance music. Contrast these figures with the following:—The number of physicians and surgeons in the city is 1250, of apothecaries 89, of midwives 1495, and of Dentists 43! To a satirical mind it might occur to ask—Which are the happier, the people of Vienna or its Dentists?

PROFESSOR OWEN'S address at the recent distribution of prizes to the students of the Dental Hospital of London, has been much criticised in private Dental circles, but we are not sure that it is not a false pride that is at the bottom of the criticisms. Few men doubtless would have the moral strength to own before an assembly largely consisting of the weaker sex, that they were entirely indebted to art for their powers of mastication and articulation. But we see no real reason why either patient or Dentist should blush at the fact. No one is ashamed of wearing spectacles.

A BILL has just been passed by the Legislature of the State of Illinois "To ensure the better education of practitioners of Dental Surgery, and to regulate the practice of Dentistry" in that State. The machinery of the Act is delightfully simple. A board of examiners, to consist of five practising

Dentists, is to be appointed by the Governor, and these five individuals are entrusted with the conduct of both registration and examination. Each candidate for examination will be charged two dollars, and out of these contributions each examiner *may* receive five dollars for every day actually engaged in the duties of his office. Any graduate of a reputable Dental college may obtain a licence to practise without examination for one dollar, while persons already engaged in Dental practice in the State are apparently entitled to register without any fees at all. What a contrast this neat little act presents to the cumbrous machinery of our own. The Americans at home too seem to hold very different views about free trade in Dentistry from those which some of them so loudly express here. Illinois is the fourteenth State that has started a Dental register.

THE new Dental journal—‘The Dental Record’—published by the Dental Manufacturing Company, gives a prominent position to the following announcement :

“Dr. W. Finley Thompson has been invited, and has kindly consented to give a Clinical Demonstration in Operative Dental Surgery at the offices of the Dental Manufacturing Company on Saturday, August 6th, at 2 p.m.”

That is as if the ‘Athenæum’ were to announce that Mr. Millais, R.A., would give a lecture on Art Furniture at Messrs. Maples; or the ‘Guardian,’ that the Rev. H. R. Haweis would demonstrate the proper set of ecclesiastical vestments at Messrs. Cox’s. Is Dentistry always to smell of the shop?

THE ‘Dental Record’ gives the following poetical account of its origin :—“Begotten out of Knowledge by Necessity, nurtured in embryo with Thought and Care, we bring into existence a journal stamped with Energy.” Grammar, of course, is not learnt *in utero*, even with Knowledge for a mother; but before the youthful adventurer has been many months in the world, it will probably have learned that

Necessity is usually classed as a female—the reputed mother of invention.

THINGS are being set in train for what it is now the fashion to call “the expurgation of the Dentists’ Register.” First, a carefully written and closely reasoned article, said to be from a legal pen, appears in the ‘Journal of the British Dental Association,’ urging the Dental profession “to combine with its leading members in obtaining an opinion from counsel” upon the famous Section 6, with the view of going into court and securing a judicial decision on the obnoxious clause. Then this article is almost bodily transferred to the pages of the ‘British Medical Journal,’ where it does duty as first leader. Next, the profession having been unofficially sounded on the subject by means of a letter in the ‘Dental Association Journal,’ a private canvass is set on foot to obtain the sinews of war, and promises of contributions amounting to something like £200 having been obtained by this means, everything is ready for the next step. What this may be it is of course impossible for us to say, but we should not be surprised if the next number of the Association’s journal were to contain a public request for contributions to its legal expenses guarantee fund. That will mean an open renewal of war, and if the body of the British Dental Association throw in their lot with their leaders, we shall soon be in the midst of an internecine struggle between six hundred of the *élite* of the profession and six hundred of its dregs. And all because “some^{er}one had blundered.”

It is too late we fear to stop the renewal of the conflict. The expurgation of the Dentists’ Register seems to be the only object for which the British Dental Association exists, and for the present it is useless to preach to it. We deplore the perfumer element in the Register as strongly as the

Association does, but we question—gravely question—the expediency of attacking it by a side wind. Grant for a moment that the efforts of the Association are successful; that counsel's opinion and judge's judgment are given in its favour, it is very doubtful whether a separate action may not be necessary in each individual case, for the perfumers have already received much flattering encouragement from both counsel and council. Grant, further, that the expurgation is successful, even then we doubt whether the victory would not be purchased as dearly as defeat. All sorts of evil feelings would have been stirred amongst those Dentists who, though legally registered, are separated by the most shadowy line from their disregistered friends, and naturally sympathise with them rather than with the purple and fine linen of the Dental Association. What the profession at large desires is a final settlement, and not a stirring up of dregs.

PROFESSOR SRICKER, of Vienna, has recently been making a series of microscopical observations on salivary corpuscles, and finds them to consist of a complete network of threads. The thickened points where these threads intersect have hitherto been mistaken for granules when examined by low powers, and it is the constant fluctuation of the threads during the life of the corpuscle and the consequent oscillation of their intersecting points that have been mistaken for the so-called Brownian (molecular) movements.

THE American Medical Association has determined to establish a special section on Dentistry. This concession has apparently been received gratefully by the majority of the Dental profession in America, the correspondent of one journal being so pleased by it, that in sheer gratitude he proposes that at its next meeting the American Dental Association should return the compliment and create a Medical Section.

JULIUS PARREIDT, of Leipzig, is preparing a German translation of Mr. Thomas Fletcher's well-known 'Practical Metallurgy for Dentists.' We have been furnished with advanced proofs of the book, and have found the translation very accurate. Notes have been sparingly added by the translator where necessary.

OUR attention is constantly called by country correspondents to certain professional circulars and advertisements in provincial papers. The last circular we have received contains a plan of the neighbourhood in which the advertiser practises, so great apparently is his anxiety that patients shall not miss their way to his consulting room. We are loth to give to the advertisers any more of that publicity which they so earnestly covet, but if the practice of advertising in the local papers shows any sign of increase, it will be a question with us how far it will be advisable to publish in each number a list of advertising Dentists, to whose notices our attention may have been directed.

A FATAL case of poisoning by chlorate of potash, which recently occurred at Belfast, is a fresh warning to those who employ this drug profusely in ulcerative stomatitis and other affections of the mouth, without impressing on their patients the necessity for precaution in its use. Several cases of more or less serious symptoms following the medicinal use of chlorate of potash have from time to time appeared in the medical journals, and yet the majority of practitioners persist in regarding it as a harmless substance,—a close ally of common salt, plus a little oxygen.

AT a recent meeting of the Wakefield Naturalists' and Philosophical Society, Mr. Crowther, Vice-President of the Society and a well-known member of the Dental profession, exhibited the brain of a large sheep-dog, which was so pre-

pared as to defy the ravages of decay and putrefaction. A brain treated by the process described by Mr. Crowther may be exposed for days to the heat of the sun without fear of decomposition, and used for scientific purposes or microscopical examination whenever required.

The Dental Examiner.

INTRODUCTORY ARTICLE.

WHEN our profession was young and our requirements comparatively few, the management of even the most extended practice did not so severely tax the discernment and the experience of the operator as at the present day. The surgical instruments used in Dental operations were few, and the materials employed in the surgery strictly limited. Plastic fillings were hardly known, if we except the amalgams of silver made in the first instance with the filings of silver coin and mercury. Even the preparations of stopping gold were not manufactured with any great attention, and the few drugs usually employed were readily obtained and fairly pure. In the laboratory, better known in these days as the "workshop," sea-horse bone and natural teeth, gold plate and wire, and a few trifling articles of less importance, constituted the Dentist's stock-in-trade. Our processes were few, our appliances limited, and our materials, as I have said, easily understood and readily purchased. Manipulative skill stood high in those days—indeed, the demand for good operators was greater than the supply—and the operator felt sure he understood the material he used. Do not let us make any mistake when speaking of the past, for in the laboratory as well as in the surgery a great deal was done that every age must be proud to acknowledge, and (under the circumstances) no period can surpass. The Dentist was then less confused by the number of appliances that sur-

rounded him, and if he only understood the proper way to treat them, his successes were more to be depended upon.

It is not our intention step by step to trace the changes, the improvements, the modes of operating, the ways of working that time has brought about. We pass from the past to the present, from that which was limited to that which is now nearly universal. We shudder as we approach the surgery, not because we give more pain now, or are ignorant of what we are about, for we have at the present time skill that at least equals, if it does not surpass, the skill of the past; but we tremble because we are embarrassed by the number of preparations used in the Dental surgery and the variety of new materials presented to our notice. We see an array of forceps that would stagger the most fastidious, and we appear to forget that as a rule "the best workmen use the fewest tools." Surrounded by pluggers and excavators of every conceivable shape and size, we are yet being presented with new patterns, for every one wishes to advocate his own style of manipulating, and he thinks that he has discovered a new instrument when he has but revived that which has been employed for ages. We have no cause to find fault with all this activity, but we do say that the student is painfully embarrassed by the groups of instruments he is called upon to employ; and if we turn our attention to the laboratory, the workman, however intelligent he may be, finds more to confuse than to encourage him by the directly opposite statements that are made. "Do you use spiral springs?" asks one, "I never think of such a thing?" "Are you still employing rubber?" asks another, "Celluloid is far superior."

Experience will teach us a great deal, but we gain our experience dearly when, by the introduction of a new material in our practice, we encounter failure; and we must not expect that the Dental dépôt *can* be responsible for all the materials it vends, coming as they do from so many sources. The want has long been felt and expressed, that some responsible body would be willing and capable of undertaking the practical examination of all Dental requirements, and it is in the attempt to supply this want we set

aside a portion of our space for THE DENTAL EXAMINER. It is practically impossible to find in one individual, however large his experience, the ability to give an authoritative verdict upon all that is submitted to the profession, and even if such were practicable it would hardly be just. One man may have his time monopolised by the surgery, another may be engaged in the laboratory. We have each of us perhaps some particular "fad," and in following out our modes of practice we sometimes hardly give enough attention to the procedure of others. Even in the most common operations we have distinctly different modes of operating; as, for instance, when one individual will declare that he cannot insert an ordinary gold filling without the rubber dam, while another will tell you that he never uses that appliance at all, and yet the results obtained by both these operators are nearly the same. Our object will be to try to arrive at a just, disinterested, and practical opinion of the merits or imperfections of all materials and appliances used by the Dentist, whether it be in the form of a filling employed in the surgery, or a new material suggested for the laboratory. In attempting to carry out these plans we have the promise of co-operation, the assistance of some attending at our special hospitals, and the researches of the practical chemist. In every instance the material or apparatus will be submitted to the careful experiments of more than one operator or workman before we give an opinion. It does not necessarily follow that our examinations are to be confined to that which is new, but it will be our constant study to subject all that *is new* to practical tests. Nor do we propose to confine our observations to things only; systems of operating and methods of working will fill up much of our space, and we shall at all times feel gratified if the attentive reader will freely express his opinions, even though he disapproves of what we advance. In everything we wish to be guided by the *strictest impartiality*, giving our opinions freely for the encouragement and advancement of Dental science and the benefit of the profession at large.

Forceps, Past and Present, will form the subject of our next article.

[NOTE.—Dental materials or appliances intended for notice in the 'Dental Examiner' should be sent to the Editor at 11, New Burlington Street, W.]

Literary Notices and Selections.

AMERICAN DENTAL POLITICS.

IN our last issue we published a lengthy article in which English Dental politics were criticised from the American point of view. We now present to our readers the opposite side of the question, in the form of a leading article from the very same issue of the 'Missouri Dental Journal' in which the American criticism appeared. In connection with the same subject we may refer our readers to a letter by D.D.S. in our correspondence columns.

"The one fact that bears most heavily upon Dentistry, and prevents its general recognition as a profession by professional men, is that of defective education, both general and special. Two things appear to be necessary to remedy this defect. First, the holding of a degree must become a necessary condition to Dental practice, and second, no one should be admitted into any institution having the authority to confer degrees, without a proper preliminary education. Neither of these rules can be enforced so long as practitioners of Dentistry receive students into their offices with the intention of fitting them to engage in practice after a certain term of private pupilage, nor so long as every one who chooses to *call* himself a Dentist is recognised as such by both the Dental profession and the public. That the holding of a degree shall be regarded as necessary to entrance into Dental practice, can never be an established idea with the mass of Dentists, until the time shall come when the custom of holding degrees becomes universal.

"In order that the custom may become universal it will first be necessary to make a beginning. A starting point must first be established as a basis for future operations, and as a rule for future guidance. How shall this be done? This is the important question which, though repeatedly asked, has not, up to this time, been answered in any way that has been satisfactory to the parties in interest, and at the same

time practical in operation. One answer, and the chief one, has been, "Attend a Dental college and obtain a Dental degree." But in practice various causes have operated to prevent a general compliance with this proposal, and the suggestion has not been acted on to any great extent.

"There is no learned profession that does not prescribe certain requirements that must be conformed to before admission into its ranks can be had. Medicine, law, divinity, each have their rules and regulations, a strict compliance with which is a necessary condition to admission. In medicine no one can be admitted to regular membership in any organised body of that profession unless he holds a medical degree. The effect of such a rule is that no one is recognised as belonging to the profession of medicine who is ineligible to membership in any of its societies. That the rule is a wholesome one can scarcely be questioned, and it would seem that the two facts just above stated, would indicate the path which would lead to the establishment of a similar custom in Dentistry. The one obstacle to the enforcement of such a rule in Dentistry is the lamentable fact that a large proportion of Dentists are now without degrees, and it may be added, that unless some new facilities are provided for that purpose, there is little hope that they will ever obtain them.

"Still, many of these men are worthy and useful members of our local and state societies, and their presence and co-operation could not well be dispensed with. In what manner can these difficulties be removed and our membership harmonised on what appears to be the only proper basis, except by conferring degrees upon all such members of societies as are in good standing, and then adopting the rule to admit none but graduates in the future? Such action would make it necessary that all future accessions should come by way of the schools. Under the workings of such a rule Dentistry would soon be entitled to be called a learned profession, and kindred professions would so recognise it.

"The foregoing suggestions are made solely with a view to the placing of Dentistry on a proper footing before the world *at the earliest practicable day*; and in the belief that numbers of the present generation can give essential aid in this noble work, if they are first placed in a position to co-operate, equally, with the schools in the work of education."

Dental News.

DENTAL HOSPITAL OF LONDON MEDICAL SCHOOL.

THE Annual Distribution of Prizes to the Students of the Medical School connected with the Dental Hospital of London took place at Willis's Rooms on Thursday, June 30th, Professor Owen, F.R.S., occupying the chair. There was a very fair attendance. The Dean, Mr. T. F. K. Underwood, commenced by reading his Report as follows :

" At our prize distribution last year I was glad to be able to say that the universal depression of the preceding year was wearing off and that we were again moving steadily forwards, and I expressed a hope that by the present time the London School of Dental Surgery would be in its normally flourishing condition. My expectations have been fulfilled ; the School is now thoroughly up to its work, and I hope that my report will show that we are not only aware of what we ought to do, but that we are efficiently carrying out the scheme of education and relief for which we exist. The entries for the winter and summer sessions, the latter of which is now rapidly drawing to a close, were nearly equal to the best year we have ever known, and as the quality and quantity of relief given must depend largely upon the number of students to administer it, the prosperity of the school is of the utmost importance to the poor among whom our work lies. For it must always be remembered that it is quite impossible for even general hospitals, much more special ones, to grapple thoroughly with the disease and suffering around us. At the best we can hope to relieve very partially the sickness which is so widespread in London. The examinations at the College of Surgeons, which are held three times a year, of course deprive us from time to time of the services of the more advanced students ; but as long as the entries exceed the drain upon us, we have plenty who are only too glad to step in and fill up the places of those whose term of study is over. I have great pleasure in stating that of the twelve candidates whom we sent up for the examination just over, every one has passed, and I venture to say it is not often that a medical school can show a pass list of 100 per cent. Among the newly-fledged licentiates stands prominent Mr. W. Hern, whom you will have so often before you that you will be in no danger of forgetting him. He is Saunders

Scholar for 1881, and this means that he is the most distinguished student of his year, of which fact you will have full proof shortly. The exertions of our medical tutors, past and present, have largely contributed to the exceptionally good pass list, and while we have lost the valuable services of Mr. Storer Bennett as medical tutor, we have retained him among us as assistant surgeon. Mr. Morton Smale, formerly a distinguished pupil of this hospital has been appointed to fill his place. The commencement of his work in preparing men for the late examination is a very conspicuous beginning and augurs well for the future. Our demonstrator, Mr. Claude Rogers, has proved himself so valuable that we have determined to appoint a second demonstrator to share the work, and Mr. John Ackery, also a distinguished pupil and a late house surgeon, has accepted the post. With two such officers, the staff feel the burden of teaching greatly lightened, and we think that we have now done our utmost to secure the most thorough and systematic instruction in our branch of surgery. In the place of Mr. Makins (late lecturer on metallurgy) and of Mr. Turner (late lecturer on mechanics) we have been fortunate enough to secure as their successors respectively, Mr. Louis and Dr. Walker. The former gentleman is well known in the chemical world, and the latter (Dr. Walker) needs no introduction from me. He was one of the first officers of the hospital at its foundation. On the surgical staff we have to regret the resignation of Mr. Bartlett, who for very many years held the office of assistant surgeon, and of Mr. Ashley Gibbings, both old students here. In their place Mr. Storer Bennett and Mr. Arthur Underwood have been appointed. It is right that I should take this opportunity of mentioning the valuable help the staff have received during the past year from our successive house and assistant house surgeons. These posts are filled by senior students, who are selected from the best men of their year to discharge these duties. Mr. Bradshaw our late, and Mr. Blackmore our present, very able and indefatigable house surgeon, together with Mr. Rees Price and Mr. Curle, the present assistant house surgeon, deserve our very sincere and hearty thanks for the excellent and efficient manner in which they have been and are carrying on the work of the hospital, and I am particularly grateful to them for the way in which, while they retain their popularity, they assist us in maintaining the necessary discipline.

“The valuable scholarship founded by Mr. Edwin Saunders and bearing his name will be presented to Mr. W. Hern, who has fully justified the hopes I expressed of him last year. He has proved himself thoroughly worthy of bearing

the honour which we are gratified in being able to bestow upon him. Mr. Hern showed every evidence from the beginning of what he meant to do, for he gained two first-class prizes, though only in his first year, and he has also carried off, I am afraid to say how many, prizes at Middlesex Hospital.

"Mr. Buchanan, of Glasgow, still continues his generous gift to us of an annual prize of five guineas for an essay, the subject of which you will see upon the prize list, and there are few present, I think I may safely say, who have not at some time felt a very practical interest in it. Every year we hope that Mr. Buchanan will be with us the next, but although we are of a very hopeful disposition we begin to despair of seeing him.

"The Student's Prize for their own Society will be awarded, together with the prizes of the Medical School. It is gained by Mr. J. S. Amore, the Saunders Scholar of last year, and one whom most of our friends will recognise as a prizeman with a large capacity for honours.

"The prize for Operative Dental Surgery has been awarded to Mr. Curle. The examination extended over three days and embraced the treatment of irregularities, extractions under anæsthetics, and stoppings—three of the most distinctive points in Dental Surgery.

"And now, as my report has been longer than I could have wished, I will bring it to a close, only saying that I think our prize list shows evidence of work well done; and if examinations are worth anything (and there are some who would fain persuade us they are not) our programme shows that we are keeping up our old prestige, and that our prosecution of the scientific study of this branch of surgery keeps pace with real relief given from very real pain which it is our privilege and duty to afford. Finally, on behalf of my colleagues and myself I must express the pleasure which it gives us to see so many kind friends here to-day. To the ladies our thanks are doubly due, and we beg to tender them our grateful acknowledgments. I can vary our usual invitation to our visitors to see over the hospital by saying it is undergoing repairs and is, I am sorry to say, through the dilatoriness of the workmen, scarcely in a fit condition to receive our friends."

The Dean then presented the various prizemen according to the following list:

The Saunders Scholarship (presented to the student who obtains the largest number of 1st class prizes)—Mr. W. HERN.

Mr. BUCHANAN'S Prize, for Essay on "Causes, Symptoms,

and Treatment of Neuralgia in connexion with Diseases of the Teeth"—Mr. J. S. AMOORE.

WINTER SESSION, 1880.

Mechanical Dentistry.—Mr. W. HERN—1st Prize; Mr. J. O. BUTCHER, Mr. W. HARRISON—2nd Prize; Mr. J. M. ACKLAND—1st Hon. Certificate.

Metallurgy.—Mr. J. J. ANDREWS—1st Prize; Mr. S. C. BUCKLAND—2nd Prize; Mr. J. O. BUTCHER—1st Hon. Certificate.

SUMMER SESSION, 1881.

Dental Surgery and Pathology.—Mr. W. HERN—1st Prize; Mr. W. A. TURNER—2nd Prize; Mr. A. ALEX. MATTHEWS—1st Hon. Certificate; Mr. S. C. BUCKLAND—2nd Hon. Certificate.

Dental Anatomy and Physiology.—Mr. W. HERN—1st Prize; Mr. A. ALEX. MATTHEWS—2nd Prize; Mr. S. C. BUCKLAND—1st Hon. Certificate; Mr. W. HARRISON—2nd Hon. Certificate; Mr. J. M. ACLAND—3rd Hon. Certificate.

Operative Dental Surgery.—Mr. ARTHUR CURLE—Prize.

Student's Society Prize, 1880, for paper on "The Dentition of the Mollusca,"—Mr. J. S. AMOORE.

Professor OWEN then delivered his address. The dental organs, he said, had afforded him a very interesting subject for biological studies, and he had accepted with pleasure the invitation of the President and Council to perform the agreeable duty which he had just discharged in connection with their special Hospital and School. Odontology was a comparatively recent growth. When he was a student at Paris, more than fifty years ago, the opinion of such men as Cuvier and De Blainville was that the teeth were mere secreted products, having no organic connection with the pulp or part secreting them. The microscopic demonstration of the structure of dentine recorded by Leuwenhoek in the 'Transactions of the Royal Society' in 1670 had been overlooked and forgotten. This was confirmed, or rediscovered, by Purkinje in 1835, and more fully worked out by Retzius in 1837, since which time the persevering labours of the Messrs. Tomes, father and son, had placed the study of this part of the human frame upon an exact and scientific basis. The direction of his own Dental studies had been partly with reference to the diagnosis of extinct animals, and he felt bound to testify how greatly he had been helped in this by the study, especially microscopical, of fossil teeth. Palæontology had brought to light evidences of dental armatures in a vertebrate class which had previously been thought to be definitely characterised

by toothless jaws. It was true that the beak of some birds presented tooth-like serrations, but in the fossil skull of an Eocene bird from Sheppey he had found the bony supports of such weapons as truly merited the name of teeth, and still better evidences of teeth implanted in sockets had been demonstrated in the extinct birds of an older geological period by Prof. Marsh in North America. Additions to our odontological knowledge might still be made without undertaking adventurous journeys, and even without leaving one's own fireside. For instance, if a few fragments of coal were examined with a pocket lens a bright speck might perhaps be found on one of them, and on rubbing the piece flat and thin, and cementing it to a glass slide, the speck might prove to be a tooth of an old carboniferous fish or batrachian, and they might examine under the microscope the organisation of the teeth of some old and low forms of extinct animal life (at the close of the meeting Prof. Owen handed round slides showing some very perfect specimens of teeth thus preserved in coal, and exhibited their structure under the microscope). In the lower vertebrates the life of the teeth was short, but they were quickly replaced by others; in mammals, on the other hand, there was but one succession, and the successors of the so-called "milk teeth" lasted long enough to have acquired the name of "permanent teeth," though they seldom lasted to a very advanced age. There was, however, a belief entertained by many that a third set of teeth might be acquired by human centenarians. He had always felt very doubtful as to the truth of this belief; he was convinced that actual phenomena had suggested the statement, but that these phenomena had been misinterpreted. He was accordingly very pleased when, on mentioning the subject at a country house where he was staying, a clergyman present said he could show him an instance—an old woman in his parish who was alleged to have passed her hundredth year, and who was then cutting her third set of teeth. He went to see her next day, when, in response to the shouts of her pastor, the deaf old crone pulled down her lip and showed the blackened stump of a tooth, the crown of which had gone many years before. The absorption of the alveolar process had brought to light this remnant of a long-lost tooth. Other stumps of teeth, of which the loss of the decayed crowns had been forgotten, might in a like manner appear through the wasting of the senile jaw, and this had given rise to the belief in the acquisition in extreme old age of a third set of teeth. Prof. Owen, in conclusion, remarked on the perfection to which the department of mechanical Dentistry had been brought. He felt bound to testify that

he had never at any age possessed a dental system which so completely, agreeably, and painlessly performed its functions as did the substitutes with which he had been provided, and he had the comfortable assurance of knowing that not one of his present incisors, canines, or molars would ever cause him a toothache.

Professor ERICHSEN then rose to propose a vote of thanks to Professor Owen for his address, and in graceful terms on behalf of the assembled company, expressed his gratitude to the distinguished chairman for his presence on that occasion, which he said must necessarily confer fresh lustre on the school. It was a happy augury for the future of Dental science, when a gentleman so eminently distinguished in the scientific world was found presiding at such a gathering as the present. Their thanks were especially due to Professor Owen, for his most brilliant, interesting, and humorous address. Often as he (Mr. Erichsen) had been present at gatherings like the present, he never remembered having heard an address so singularly appropriate to the occasion, and he was sure that all present would join with him in a cordial expression of their thanks to their distinguished visitor.

The Chairman then, after a brief acknowledgment of the vote of thanks, dissolved the meeting.

RECENT ADDITIONS TO THE HUNTERIAN MUSEUM.

THE additions which have been made during the past twelve months to the Museum of the Royal College of Surgeons are now on view in the council room of the College, and are well worth a visit from those interested in the comparative anatomy and pathology of the teeth, an unusually large proportion of specimens being connected with these subjects. We first notice a large collection of human skulls which, when added to the series already in the museum, will form a basis for anthropological research, unrivalled by any like collection in the world. The new specimens comprise many interesting examples of the different forms of skull. The mesocephalic skulls are naturally predominant, but there are typical instances of the brachycephalic and dolichocephalic varieties. In many, rescued as they have been from their lodging in the cold ground, the lower maxillæ and the teeth of the upper jaws are absent,

but they still offer many points of interest for Dental study. Side by side with the human skulls are several skulls of animals, showing well the various modifications in the teeth according to the varying functions they have been required to perform. Amongst these we may note as well worthy of observation the skull of the large elephant seal (*Macrorhinus leoninus*), the gift of Mr. H. Mansel; the skull of a warthog (*Phacochærus alicani*), from the Barnard-Davis Collection; two skulls of the pilot whale, the jaws and teeth of a large skate (*Raia batis*), presented by Lord Ducie, the jaw and teeth of the barking shark (*Selache maxima*), given by Professor Turner; and lastly, the skull of an orang, showing extensive fractures, in one of which, an oblique one through the lower jaw, the process of repair has evidently commenced.

Amongst the palæontological specimens the most interesting is a series of casts of the bones of an extinct bird, the *Hesperornis regalis* (Marsh), the originals of which were found in the middle cretaceous deposits in Kansas, and are now in the Museum of Yale College; the casts have been presented by Professor O. C. Marsh. The *Hesperornis regalis* is an extinct monster, dear to the modern evolutionary school of palæontologists, for it seems to mark a transitional stage in the development of the avian jaw. The *Hesperornis* possessed numerous teeth, which were implanted in grooves, while the extremity of its bill appears to have been provided with a horny sheath which served the same protecting purpose as in modern birds. Two of the casts in the museum represent a portion of the left mandible retaining three teeth, and a part of the right mandible showing the imperfect sockets. Amongst other palæontological specimens may be noticed a molar tooth of *Diprotodon Australis*, and a portion of the lower jaw of an extinct variety of kangaroo, both presented by Dr. George Bennett.

Amongst the pathological specimens it will suffice to enumerate the following:—A salivary concretion from the lower incisors, given by Dr. G. P. Rugg; a necrosed vomer, from Dr. Frank Renaud; a carious molar, firmly ankylosed by its fangs to a contiguous molar, presented by Mr. F. Le-Gros Clark; a series (four in number) of teeth showing various morbid conditions, given by Mr. James Salter; a specimen of recurrent epithelioma of jaw, with enlarged teeth, the gift of Mr. Christopher Heath; a papilloma of the lip, presented by Mr. T. W. Ransford; and lastly, the skull of a rickety child, showing complete ossification of Meckel's cartilage, which, it will be remembered, is the cartilage in connection with which the lower jaw is developed. This last specimen is one of a series, illustrating the pathology of rickets, which

has been prepared and presented by Mr. S. G. Shattock, and which, now that the subject of rickets is the subject of so much discussion, will probably attract as much attention as anything in the present collection.

Many of the above specimens are well worthy of a more detailed description, and still more of a visit; but we hope that the little we have said of them will suffice to show that the specialty of Dentistry is not being neglected by the College of Surgeons, at any rate, so far as its scientific aspect is concerned.

THE POSITION OF DENTISTRY IN AMERICA.

DENTAL science has made a fresh step in advance across the Atlantic. The American Medical Association, following the example of the International Medical Congress, has at length, on the motion of the Nestor of American Surgery, Professor Gross, established a special section on Dentistry. At its annual meeting, held at Richmond, Va., on May 3rd, the motion was introduced by Professor Gross in the following terms:—"When we consider, Mr. President, the value of Dentistry, and the fact that it is universally regarded as one of the necessities of civilised life, it is surprising that such a section was not established long ago. Dentistry is the oldest of all the specialties. It has been practised from time immemorial, and in modern times has acquired a degree of importance not exceeded by any one branch of the healing art. There are at this moment not fewer than fourteen or fifteen Dental colleges in the United States alone, and thousands of educated Dentists in the enjoyment of a successful practice. Dentistry has a copious literature; many journals are published in its interest, and numerous associations attest the ties by which its members are cemented together. If these things be true—and I vouch for their accuracy—it is, it seems to me, eminently proper that this Association should, without delay, form a section such as is contemplated by my motion. The Association has long had a section on ophthalmology, one on otology, and one on laryngology; and surely if these specialties are entitled to such a distinction it is not difficult to find reasons for placing Dentistry upon a similar footing. Every man, woman, and child in the civilised world requires the services of the Dentist, whereas comparatively few persons require the services

of the oculist, the aurist, or the laryngologist. The claims of Dentistry, when properly practised, to an elevated professional status, are everywhere recognised, while the social status of the Dentist is steadily progressive. If Dentistry was once simply an art, it is now an art and a science—practised in all enlightened communities by educated and refined men. I hope, therefore, that the sanction of the house will be given to my motion.”

Professor Sayre, of New York, seconded the motion, and Professor Davis, of Chicago, spoke as follows in its support:—“Oral or Dental Surgery is as much a legitimate department of medicine as ophthalmology, otology, or gynæcology, and as there are at present enough members of the Association who are practising Dentistry to commence a good section, I hope the proposition to create one will be cordially sustained by the Association. Its practical effect will be to increase the number of fully educated Dentists, and by bringing them into closer relations with the great body of the profession, greatly advance the mutual interests of all parties.”

The motion was unanimously carried:

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following gentlemen, having undergone the necessary examinations, were admitted Licentiates in Dental Surgery of the College at a meeting of the Board of Examiners on the 27th ult., viz:

Amoore, John S., Balham.
 Davis, Charles D., M.R.C.S., Kilburn, N.W.
 Ewbank, Francis, M.R.C.S., Queen Anne Street, W.
 Harris, U. A. C., M.R.C.S., Brighton.
 Hern, William, St. Mary's Square, W.
 Matthews, William, Hereford Road, W.
 Oakley, Archibald H., Tunbridge Wells.
 Pidgeon, William J., Finsbury Park, N.
 Price, Rees, Blythe Road, W.
 Rose, Frederick, North Crescent, W.C.
 Stuck, Thomas J., Gower Street, W.C.
 Tothill, Walter, North Crescent, W.C.
 Truman, Charles E., M.R.C.S., Southwick Street, W.
 White, Henry F., Hill Street, S.W.

Only two candidates failed to acquit themselves to the satisfaction of the Board.

The following were the questions submitted to the candidates at the recent examination for the Licence in Dental Surgery at the Royal College of Surgeons of England. Answers were required to at least one of the two questions, both in anatomy and physiology, and in surgery and pathology, and to at least two out of the three questions in both the special subjects.

ANATOMY AND PHYSIOLOGY.

1. Describe the course and distribution of the arteries and nerves which supply the teeth.
2. What are the changes which the food undergoes in the mouth and stomach?

SURGERY AND PATHOLOGY.

1. Describe the causes, symptoms, and appropriate treatment of ununited fracture of the lower jaw.
2. What is meant by "abscess of the antrum?" How does it differ from common abscesses, such as occurs in the cellular tissue? Give its symptoms, and the treatment which is generally adopted.

DENTAL ANATOMY AND PHYSIOLOGY.

1. Describe the crowns of the following permanent teeth, viz.: upper central incisors, lower bicuspid, first molars, upper and lower; make special mention of those peculiarities of form which predispose to caries.
2. Give a general account of the dentition of snakes: explain the mechanism by which they are enabled to swallow large objects; describe the special contrivances found in the teeth of poisonous species.
3. Describe specimens 1 and 2 under the microscope, and state the manner of formation of the structures under observation.

DENTAL SURGERY AND PATHOLOGY.

1. What are contour fillings? What is the *rationale* of their employment? Describe the relation of two contiguous teeth to each other in a perfectly normal arch, pointing out the methods by which overcrowding of teeth tends to their destruction.
2. Explain the nature of dentigerous cysts; give their symptoms, diagnosis, and treatment.
3. Describe the operation of pivoting a recently fractured tooth. Mention the difficulties and complications ordinarily encountered.

APPOINTMENTS.

Mr. STORER BENNETT has been appointed Assistant Dental Surgeon to the Middlesex Hospital.

AMOORE, John S., L.D.S. Eng., appointed House-Surgeon to the National Dental Hospital, 149, Great Portland Street, *vice* R. D. Ashby, L.D.S. Eng.

Erratum.—In the announcement in our last issue of Mr. John Allin's appointment as "Honorary Dentist to the Penitentiary, Embden Street, Hulme, Manchester," read "vice Mr. Pierrepont, *resigned*," instead of "*deceased*."

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

"PRIDE'S PURGE."

To the Editor of the 'British Journal of Dental Science.'

SIR,—I don't know whether you are well up in English history, but if so you will remember how, shortly before the execution of Charles I, Cromwell fell out with Parliament, and not being of a very enduring disposition, sent a certain Colonel Pride, with a company of musketeers, down to Westminster to exclude the obnoxious members. This proceeding was subsequently known in the racy vernacular of the day as "Pride's Purge." Now, I do not wish for a moment to accuse the leading spirits of the British Dental Association of a desire to act unconstitutionally, like Cromwell, but when I see a body of respectable and influential Dentists talking of the "Expurgation of the Dental Register," and trying with all their might to take the bread out of the mouth of poor fellows, like me, who are obnoxious to their dignity, I cannot help yielding to the temptation of drawing an historical parallel, and my thoughts run back to "Pride, his purge." I am a Dentist, sir, but as I am, from a certain constitutional humility, debarred from the means whereby others make known their merits to a credible public, I do not find my profession a very paying one, and am compelled to resort to other work to eke out my slender

livelihood. I write for the press, I teach mathematics, I paint portraits; in fact I am willing to turn my hand and my head to any honest occupation which will help to fill my time and my purse. Now, if the view of the British Dental Association is right, I have not the slightest right to be on the Dentists' Register, for I neither practise Dentistry separately nor in conjunction with medicine or pharmacy; and yet but for a little foresight, and perhaps a little untruthfulness, I might have seen my rights invaded, and half my slender income sacrificed. Am I to be better off than the five hundred registered dentists who are now threatened. The common sense view of the matter seems to me, that the Medical Council, and still less the Dental Association, have nothing whatever to do with whether a man is practising medicine or pharmacy legally or illegally. As counsel have expressed it, "The practitioner in Dentistry is to be registered in respect of his Dental qualification only, and the Council need not (I should add—have no right to) inquire as to his rights to practise medicine, surgery, or pharmacy." Many of our leading men doubtless are engaged in other callings beside that of Dentistry. Some, like myself, write for the papers; others have dealings in the City, &c. What would these men say if a new Dental Association should be started amongst us lower grades of Dentists, and should propose to prosecute them because they falsely returned themselves as practising Dentistry separately. And yet, so far as I can see, their case differs not one whit, except that their voice is more powerful, from that of us poor unfortunates. We want to practise our profession honestly; there is room for us; our expenses are small, and we can do what little we do for the poor at prices which better men cannot. In time we shall die out, possibly to the regret of many of our patients; for the present all we ask is to be let alone, at all events from this purge of pride.—I am, &c.,

A BROTHER PRACTITIONER.

AN AMERICAN VIEW OF ENGLISH DENTAL POLITICS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Probably the Dentists of this country will not be harmed by the ragings of the English correspondent of the 'Missouri Dental Journal,' and his matter would be more interesting if it could be received as the opinions of American Dentists instead of being sent from this side the Atlantic. Unhappily for the idea that Americans can sympathise in his grievances (except in the matter of American degrees), almost the whole of their action at the present is to bring about those things which he deprecates having been brought

about in England. On page 637 of your journal, central paragraph, is quoted "Dentistry has grown great in America on the only—I say it emphatically, the *only*—line it is possible for progress to be made; and to deviate from it would be to retrograde and not to advance." Yes, sir, American Dentistry has grown great without restrictive laws; but American Dentists have decided that it cannot become as great as it is capable of becoming, without compulsory and higher education; such they have found impracticable without legislation, thirteen states (according to the editor of the 'Cosmos,' April, 1881, page 219) now having legislated on the subject. Why should these laws in England be said to be for the benefit of the Dentists, and in the States for the benefit of the patients? Our correspondent writes as if such ideas as are embodied in the British Act, could never enter into an American brain, yet there is not so very much difference. If I mistake not, their Acts protect the licensed Dentist more than ours; for example, the law enacted for West Virginia states: "It shall be unlawful for any person to engage in the practice of Dentistry for *compensation* in this State; provided that nothing in this Act shall prevent any person from extracting teeth, or in any manner interfere with any person now engaged in the practice of Dentistry in this State."

Again, in the State of New Jersey, March 'Cosmos,' 1880. "That any person who shall in violation of this Act practise Dentistry for a *fee or reward* shall be liable to indictment, &c., provided that nothing in this Act shall be construed to prevent any person from extracting teeth."

The English Act allows any one to perform what operations he likes, simply making his fees unrecoverable; and preventing him using a title to which he has no claim.

There are a number of instances in which I can agree with the strictures of this reviewer of the English Act, but I cannot lay blame upon those gentlemen who carried the matter forward, till they had a law, even if not perfect. This imperfection, however, has got to be proved, and I believe the mistakes made by those who have the carrying out of the Act have been the chief causes of its condemnation. I have simply written this to point out to those who have not noticed it that at the present time American action is in much the same line as English.

I am, &c.,
D.D.S.

A CORRECTION.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I write to correct a *slight* inaccuracy in your issue
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of July 1st, under the head of "Appointments," page 650. You state Mr. John Allin, &c., vice Mr. Pierrepont, *deceased*. Not having as yet "shuffled off this mortal coil," I shall be obliged by your inserting this letter, with a notice that the appointment should have read vice Dr. Evelyn Pierrepont, *resigned*, my resignation having been caused by my leaving Manchester to practise in London. I am, &c.,

EVELYN PIERREPONT.

[We gladly tender a full apology to Mr. Pierrepont for what we cannot regard as at all a *slight* inaccuracy. The notice was inserted as we received it, and we hope Mr. Pierrepont will exonerate us from the suspicion of having killed him "with malice aforethought."—EDITOR.]

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM JUNE 1ST TO JUNE 30TH, 1881.

Extractions	Children under 14	527
	Adults	821
	Under Nitrous Oxide	389
Gold Stoppings		138
White Foil ditto ..		8
Plastic ditto		322
Irregularities of the Teeth treated mechanically		80
Miscellaneous Cases		292
Advice Cases		126
Total.....		2703

H. G. BLACKMORE,
House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM JUNE 1ST TO JUNE 30TH, 1881.

Number of Patients attended	1300
Extractions { Children under 14.....	327
Adults.....	611
Under Nitrous Oxide	86
Gold Stoppings	109
Sheets of Gold used, independent of Pellets.....	83
Other Stoppings	355
Advice and Scaling	100
Irregularities of the Teeth	40
Miscellaneous.....	53
Total operations	1681

R. DESMOND ASHBY,
House Surgeon.

Notes, Queries, and Replies.

1. *Croton-chloral*.—"M.D." writes to ask whether any of our readers can give him information as to efficiency of croton chloral hydrate as a pain-obtunder in slight operations about the teeth, or in cases of sensitive dentine. He has more than once given it in doses of five grains to a patient, preparatory to stopping and with marked success. He would be glad to know if it is at all a reliable agent in such cases.

2. *The effect of adulterations on the teeth*.—A "Dental Student" wishes to know whether any of the adulterations used in articles of food are known to affect the teeth detrimentally, and if so, by what signs their influence may be discovered.

3. *Replantation*.—"X" inquires what is the best method of securing in its place a replanted tooth.

4. *Irregularities of lateral incisors*.—"Correspondent" writes to say that he has found great difficulty in treating irregularities in position of the lateral incisors, especially in cases of semi-rotation. He would be much obliged if any of our readers would give him advice on the subject.

5. *Ash's pink rubber*.—"C." asks what is it that makes Ash's pink rubber swell and separate one piece from another after it has been worn for a few months; is it bad rubber or bad vulcanising, or bad saliva, or all three of these?

6. "F. J." propounds the following question:—How can I prevent rubber getting between continuous gum blocks; liquid silex does not seem to answer?

7. *Use of old amalgam waste*.—"M. M." inquires: Is it possible to use up old amalgam waste by warming it up in the same manner as Sullivan's cement and adding a little more amalgam?

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

- “A. C. G.” (Devonport).—Your case falls under the second Clause of Section 37 of the Dentists Act. The General Medical Council may by special order dispense in your case with the necessary examination required under the provisions of the Act; but as your apprenticeship commenced so very shortly before the passing of the Act it is possible that the Council may not grant your application. We should advise you at once to communicate with the Registrar on the subject.
- “M. X.”—The latest paper we have seen on the subject is one by Dr. Th. Kölliker, in the current number of the ‘Archiv für Klinische Chirurgie.’ We hope, however, to deal with the question very shortly.
- “ENQUIRER.”—Consult ‘Minutes of the General Medical Council in regard to the Registration of Dentists,’ published by Spottiswoode and Co.

Communications have been received from Edwin Saunders (London), J. Hardie (Alloa), Dental Hospital of London, “M.D.,” “A Brother Practitioner,” National Dental Hospital, “Enquirer,” “D.D.S.,” “A Dental Student,” “X.,” “A. C. G.” (Devonport), H. U. Olver (London), “M. X.,” “F. J.,” G. H. Stansfield (Rochdale), E. Pierpont (London), “M. M.”

BOOKS AND PAPERS RECEIVED.

“On Diseases of the Ear,” by Thomas Barr, M.D. ‘Lancet.’ ‘British Medical Journal.’ ‘Medical Times and Gazette.’ ‘Pharmaceutical Journal.’ ‘Dental Record.’ ‘L’Odontologie.’ ‘L’Odontologie.’ ‘Ohio State Journal of Dental Science.’ ‘Specialist.’ ‘Le Progrès Dentaire.’ ‘Dental Register.’ ‘Praktische Metallurgie für Zahnärzte,’ von Thomas Fletcher, F.C.S. ‘Bulth, Llandrindod, and Lanwrttyd Advertiser.’ ‘Wakefield and West Riding Herald.’

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

No. 325.

LONDON, AUGUST 1, 1881.

VOL. XXIV.

CONTINUOUS GUM WORK.*

By A. B. VERRIER, L.D.S.I., Weymouth.

I BELIEVE the idea of uniting artificial teeth to a metallic base by means of a fusible compound originated with the French. We are especially indebted to Dr. John Allen, a distinguished American Dentist, for very important and original improvements in the compounding and manufacturing of the materials employed in continuous gum work. The body and gum enamels prepared according to Dr. John Allen's formula may be obtained at any of the leading Dental depots. Basing my opinion upon results and experience in continuous gum work, I am led to prefer the material as compounded by Dr. Allen, it being more certain in its results, and when properly manipulated certainly not so liable to fracture when worn in the mouth. I have encountered many difficulties in successfully attempting to work the continuous gum process with the ordinary furnaces in use, principally on account of the great labour involved in their proper management, in consequence of which many have abandoned the process and condemned one of the most beautiful processes in mechanical Dentistry. The huge dimensions of former furnaces, the difficulty encountered in their management, the time occupied in firing and cooling the work, besides the annoyance caused by dirt and dust and the risk of being roasted oneself precluded their general adoption. I have here two furnaces made after my pattern, which are intended for use in the continuous gum process; the smaller of the two is designed for use with coal-gas or gasoline. I prefer the latter on account of its freedom from sulphurous and other gases, and consequently diminishing

* Read at the meeting of the Western Counties Dental Association at Bristol on July 30th, 1881.

the liability of gasing the work in the process of firing. I would mention that Mr. Thos. Fletcher has kindly consented to make the furnaces for me of his porous fire-clay. The larger furnace is intended to be heated with coke broken up into small pieces, assisted by atmospheric air and the vapour of petroleum until thorough ignition of the coke has taken place, when the gas may be turned off and the necessary heat maintained by the action of the foot blower, until the process of firing is complete. The small furnace is intended to stand upon a fire-clay slab supported by brackets fastened to the wall of the laboratory. The injector which is supported by the fire-clay slab underneath the furnace I have constructed so as to distribute the flame more equally over the whole surface of the muffle, and it is made so that it may be raised into direct contact with the inlet at the bottom of the furnace and so prevent the return of the gas. I am now engaged in completing a self-acting air and gasoline generator, which is principally intended for use with the injector furnace, and will reduce the time and labour in working the continuous gum process very considerably.

A denture made in ceramic paste, when artistically put out of hand and the base plate scientifically adapted to the oral tissues, is certainly the most beautiful production of Dental prothesis, besides being the purest and sweetest that can be worn in the mouth. The objection urged against continuous gum work by many Dentists is its weight, but I am afraid the failure proceeds from the fact of bad manipulation, imperfect construction, and ill adaptation of the base plates used in this process. Unless the work is thoroughly and well executed, from the procuring of a perfect model of the dental arch to the completion of the denture, failure will be inevitable. To retain a denture successfully in contact with the tissues of the oral cavity depends upon the accuracy of its adaptation, and the consequent exclusion of the atmospheric air from between the gums and base plate. If we could exhaust the air entirely from between the gum and plate, so that the full force of the atmosphere be exerted upon its lingual surface, it would adhere with great tenacity, resisting a strain equal to fifteen pounds to each square inch

of its surface. I have devoted time and attention to the construction of Dental atmospheric plates, with varied success, but for some time past I have relied upon a style of atmospheric plate especially applicable to the continuous gum process, possessing many advantages over the ordinary mode of construction, several of which I may as well mention. Its freedom from any tendency to warp in the process of firing the gum body or enamels; thorough stability in the mouth; great rigidity under the pressure of mastication; perfect adhesion and freedom from any tendency to injure the mucous membrane; its comparative lightness and simplicity of construction. I have with me a specimen plate intended for an upper denture in continuous gum work, made of two extremely thin soft platina plates united at their margins and having a slight space between the two throughout the whole extent of their surface.

I always procure models of the mouth in plaster of Paris. Before casting the metal dies a chamber or shield oval in form must be moulded on the surface of the plaster model, and should not exceed in diameter half an inch, while the thickness should not be more than one sixteenth. Having decided upon the dimensions of the base plate, allow an extra width of one sixteenth of an inch fuller all round, as the edge must be turned up and present an abrupt shoulder to the margin of the gum enamel. The base plate may now be struck up to the required form, and the edge turned up with a suitable pair of pliers and hammer. Being satisfied with the fit of the plate, secure it to the plaster model with adhesive wax. A layer of very thin sheet wax (not thicker than a threepenny piece) is now to cover the whole lingual surface of the swaged metal plate to within one eighth of an inch of its entire border, cutting away the wax plate covering the shield level with its surface, leaving it exposed. The edge of the wax plate in position upon the model should be nicely bevelled off at its outer border to a very thin layer. Mould this in sand and procure metal dies. A second plate is now to be struck up large enough to cover the surface of the wax plate and shield, allowing width enough for soldering. The two plates are now to be removed from the

plaster cast and thoroughly cleaned by boiling in a weak solution of sulphuric acid and water, washing and brushing with pumice powder in the lathe. Before uniting the two plates a few very fine holes must be drilled through the side of the shield struck up in the base or first plate, to prevent the bursting of the compound plate in the process of soldering, and also for the exhaustion of the air from between the plates by the patient when worn in the mouth. The plates forming the compound plate are now to be united with pieces of fine gold around the margins. The fine gold used in soldering should be laid on freely, as the platina absorbs most of it in the process of firing. If the union of the two plates is perfect, when tried in the mouth adhesion will be so complete as to require a very considerable force to displace it, the more so if the patient be requested to exhaust the air from between the plate by merely closing the mouth and gently sucking it. I do not advise this course, as the adhesion is so complete as to require a very considerable force to remove it, resulting from the pressure of the external atmosphere upon the whole outer area of the plate in consequence of the partial vacuum created between the plates, causing it to adhere with great tenacity. Being perfectly satisfied with the adaptation of the base plate proceed to take the articulation in the usual way, by attaching to the ridge of each plate a roll of adhesive wax as near as possible in width to the length of the teeth required for each plate respectively. Place the plates with the wax in position, requesting the patient to throw the head well backwards so that the lower jaw shall be held back by the tension of the muscles of the neck when the mouth is closed. Antagonise the wax rims and mark the position of the frænum at the median line; and then adjust the whole in the articulator. Having selected a suitable set of continuous gum root teeth proceed to set them up in the wax rims upon the base plate, beginning with the six front upper and lower teeth. Place in the mouth and arrange them as to length, fulness and general outline, avoiding artificiality. The whole set of root teeth may now be set up in the wax rims, allowing their roots to rest upon the plate and finally tried into the mouth,

adjusting any particular tooth or teeth according to your æsthetic taste and requirements of the case ; for on this stage of the work depends the success of the denture as to shade, size, length, fulness, outline, and natural appearance when finished. The adhesive wax adherent to the labial surfaces of the teeth must be removed, leaving them well exposed, so that they shall be held securely by the investient during the process of backing.

The labial surfaces and cutting edges of the teeth must now be covered with a very thin coating of fine clean plaster of Paris and allowed to set firmly. Another layer, not less than half an inch thick, composed of equal quantities of finely powdered asbestos and plaster of Paris in water, is placed around the outside of the previous covering and the plate. The best way is to turn the batter out upon a slab, previously laying a few folds of blotting paper on it to remove any excess of moisture, and then press the plate with the teeth upwards into the mixture to within half an inch of the slab. Then with a spatula or suitable knife bring the investient up, around, and over the previous coating of plaster. The investient should be sufficiently thick to hold the teeth in position during the process of fitting and securing the platina backs ; when set, the wax adherent to the teeth and plate can be removed with boiling water. The pins at the back of the teeth are now to be bent out, and a rim of soft platina, No. 6 gauge, fitted to the backs of the teeth and base plate, bending down the pins to secure the platina backing in place, which may be put on in several strips, with the ends overlapping each other, turning over the lower edge in positive contact with and upon the base plate, and should be one continuous band all around when soldered. Pieces of fine gold moistened with ground borax and water are to be put upon the parts to be soldered.

The work is now ready for soldering, which I always do in the furnace as follows :—Heat the small gasoline furnace to a good red heat, and then turn off the air and gasoline supply, gradually introducing the muffle with the piece to be soldered, which may remain in the furnace until perfectly annealed. When the investient is quite dry draw the muffle

forward to the furnace door ; now turn the gasoline and air supply full on, at the same time working the foot blower, and ignite the gas by throwing in a lighted match. Heat up the furnace gradually a second time, introducing the muffle with the work, and apply the heat until the process of soldering is complete. The work must be allowed to cool gradually before removing the investment. The piece must now be well washed in water, using a stiff brush, and afterwards boiled out in a weak solution of sulphuric acid and water, and then washed in hot water to remove any trace of the acid. Now roughen the plate with a sharp graver.

The piece is now ready to receive the first application of the ceramic paste or gum body. For this purpose I have two shallow earthenware pots with good fitting covers to contain the gum body and enamel ; one or two thin, well-tempered spatulas ; a suitable agate burnisher for compressing the compound ; also one or two fine camel-hair brushes for laying on the paste, and one rather stiffer for removing any grit adherent to the surfaces of the teeth previous to firing. Also three wide-mouthed, stoppered bottles, containing distilled water for washing the brushes during the process of laying on the gum body and enamel. Before commencing to lay on the ceramic paste, see that everything is perfectly clean, and the floor of the laboratory is well sprinkled with water to prevent dust rising and so falling upon the work. A sheet of clean blotting paper should be laid upon the bench or table on which the work and necessary articles used in the process can be put. Holding the work in the fingers of the left hand, which should be perfectly clean, proceed to lay on the ceramic paste. Mix with distilled water in one of the earthenware pots sufficient gum body for the case in hand, to the consistency of thick cream. With suitable spatula and camel-hair brushes proceed to lay on the paste, working it well into the spaces between, under, and around the teeth, removing any excess of moisture with small pieces of blotting paper, and then thoroughly condensing it with the agate burnisher, covering the surface of the plate to about the thickness of a threepenny-piece. The layer of paste is then carved to represent the gum, palatal

arch, and rugæ, taking particular care to keep the necks of the teeth well defined; and, finally, before firing the work, the surfaces of the teeth should be freed from grit or particles of gum body by brushing them with a moderately stiff camel-hair brush. The work is now ready for firing; but before applying the whole volume of heat the piece should be slowly but thoroughly dried in the furnace, by heating it to a red heat, turning off the gasoline and air supply, and then introducing the muffle containing the work gradually. The work should rest on a piece of platina wire bent so as to form three supports, and should be placed just inside the mouth of the muffle; when the work is thoroughly dry and annealed withdraw the muffle from the furnace, allowing it to rest at the furnace door.

The gasoline and air supply is to be turned fully on, at the same time working the foot blower and igniting the gas by throwing a lighted match into the furnace, gradually introducing the muffle as the heat is increased until the body becomes semi-vitrified, which is sufficient for the first firing. To those unacquainted with the firing of continuous gum work I would advise in commencing the process to use what is termed a test-piece, which is simply a piece of platina wire about six inches long flattened at one end, on which is laid a little of the gum body or enamel; this may be removed from the furnace at an interval of a few minutes and examined. The gasoline and air is then turned off, and the furnace is allowed to cool until the red heat has disappeared from the muffle, which may then be withdrawn, and the work allowed to thoroughly cool in the muffle at the furnace door. The work is then ready for a second application of the gum body, for the purpose of repairing any defects due to the shrinkage caused by the first firing. This done, the piece is again fired, allowing the second bake to be a little harder than the first, but not so much as to appear glossy. It is then allowed to cool as before, taking care to keep the muffle door closed, a precaution which must be observed after each baking.

The piece is now ready to receive an application of the gum enamel, which is mixed in the same manner as the gum

body in an earthenware pot, or other suitable vessel. A thin layer is then to be put on with spatula and camel-hair brushes, covering the whole surface of the body, varying the thickness so as to represent the different shades to be observed in the natural gum. The crowns of the teeth must be well marked, the gum well defined, and the rugæ of the palate well moulded and prominent, removing any superfluous moisture with small pieces of blotting paper. Great care should be taken to remove with dry brushes all particles of the gum body and enamel or any other substance adherent to the crowns of the teeth previous to firing. Having carefully put on the enamel, the piece is then ready for the final baking or firing, which should be conducted as advised for firing the body excepting that the heat must be stronger, in order to produce a moderately glossy appearance of the enamel when fused. It is advisable not to remove the work from the muffle until it is quite cool; if cooled too rapidly it is rendered more fragile.

The piece is now to be boiled out in a very weak solution of sulphuric acid and water, preparatory to finishing the platina plate in the usual way by filing, sand papering, stoning, &c., and the final gilding process, which may be simply done in the following way.—Take twenty grains of waste gold stopping and put into a shallow evaporating dish with about two drachms of nitro-muriatic acid and evaporate nearly to dryness over a heated sand bath. Dissolve six drachms of cyanide of potassium in twenty-four ounces of distilled or rain water, and then add the chloride of gold. This is the gilding solution. The plate to be gilded should be well cleaned with powdered pumice stone in the lathe, and thoroughly washed in clean water. To gild the work put it into a suitable vessel with sufficient gilding solution to cover the article, gently warming it over a sand bath. A strip of clean sheet zinc put into the solution and in contact with the plate will complete the gilding process, and give a very fine and rich coating of gold equal if not superior to gilding by the aid of a battery. The edges of the plate should finally be burnished with the agate burnisher and plenty of clean soapy water.

THE PHYSIOLOGY AND PATHOLOGY OF DENTAL CARIES.*

By CHARLES A. HAYMAN, L.D.S.R.C.S. Eng., Bristol.

THERE are two principal hypotheses concerning dental caries ; one affirming it to be simply due to chemical action aided by the growth of parasites, the other that it is dependent on "vital action." By the latter is meant that, inasmuch as the teeth are part of a living organism, they are subject to diseases similar to those which affect other organs of the body. I propose to bring forward a few points in favour of the former theory.

Caries bears a close relation to luxurious habits, and it is interesting to notice how it is developed by alteration of habits of living. Races not indigenous, but freshly imported into a country, appear to suffer in an exalted degree. Dr. Magitôt tells us the Negro and Arab races have remarkably good teeth, but the Caucasians are remarkable for decay ; the Mongolians hold a middle place.

Statistics.—Mr. Mummery gives the following statistics concerning the frequency of caries in ancient crania :

Among Ancient Britons of Dolichocephalic type 2·94 per cent.

Among the Brachycephalic Britons 21·87 per cent.

Among the Romano-Britons 28·78 per cent.

Among the Anglo-Saxons 15·78 per cent.

Among the Ancient Egyptians 41·66 per cent.

Amongst the Romano-British skulls contracted jaws were met with three times ; this is a thing quite unknown in savage races, and seems to show that the habits of civilisation, which forbid the thorough use of the teeth, prevent the jaws from growing to their proper size. Hence the V-shaped palates so often found amongst the European races.

General appearance.—As regards the general appearance of caries, the first sign is seen in or through the enamel. When in a fissure, a dark spot is noticed ; but if on a free

* Read at the meeting of the Western Counties Dental Association at Bristol, July 30th, 1881.

surface, as the cusp of a tooth, the enamel becomes opaque and has a chalky appearance; later on the shade deepens to slate, and then to a brownish colour. When the decay has pierced the enamel, the dentine is acted on by the caries running in the direction of the tubes towards the pulp, but at the same time it runs laterally so as to affect the enamel on its inner surface; this soon breaks in and exposes a large portion of carious dentine, which forms the base of the cone of decay.

Microscopic appearances of enamel.—Now let us consider the microscopical appearance of the enamel in the early stage of decay just as the opacity is well marked. We see, under low power, an increased porosity of the tissue: the union of the fibres is very imperfect, or even the granular condition may be still in existence. The central portion of the fibre is the first to become affected, and when treated with carmine the middle takes the colour and the other parts remain unchanged.

Microscopical appearance of dentine.—Dentine, on the other hand, presents a very different appearance. If we take a thin section, cutting across the tubes, we shall find that each tube is enlarged; and, as decay advances, the intervening substance is affected, it loses its lime salts, and allows short lengths of the tubes to be isolated.

Leptothrix buccalis.—On the surface and throughout the whole of the section may be traced a fungous growth, the *Leptothrix buccalis*, the origin of which it will be well to consider. It is generally found in the mucus of the mouth, on the surface of the tongue, and in the interstices of the teeth. It is a whitish cheesy substance. Under the microscope it presents a grey granular mass, having filaments both delicate and stiff, and of various lengths, which erect themselves, and resemble an uneven turf; it grows to the greatest lengths in the interstices of the teeth, where it often forms bundles. On the surface of the tongue are cylindrical or club-shaped elements, which are epithelial prolongations of filiform papillæ; these are covered by a thick mass of granular matter of *Leptothrix*, and are shown to bristle with short filaments of the fungus. There are

delicate filaments in the saliva, and M. Hallier says, "They are only movable spores in repose, which wander during a certain period in the liquid, but finally attach themselves somewhere and increase by forming new articulations." When caries has penetrated the enamel and formed a cavity, the *Leptothrix* insinuates itself, it is found covering the superficies of a carious cavity, and, with the exception of particles of food, forms the first layer. The superficial layers are formed of granular masses and filaments of fungus; a little deeper, where the dentine is brown, it consists of irregular fragments united by *Leptothrix*.

We see, then, in a carious portion of brown colour, irregular chinks filled with *Leptothrix* and its elements, and at a remarkable depth it runs parallel with the canaliculi; this can be seen in sections of decalcified teeth, showing plainly that the fungi have penetrated the dentine to a considerable depth, and have not simply filled pre-existing cavities, but assisted in the destruction of the tissues by burrowing into the deeper parts.

If we take a section of carious dentine, cutting across the tubes, we see the canaliculi becoming gradually larger until they attain a considerable size; they become increased in thickness, and present a beaded condition, showing many varicose dilatations and sinuosities. Later on, the tubes are pressed out of shape and contorted; their regular, uniform round appearance is lost, the intertubular substance is lessened, and the tubes take a polygonal shape, the matrix entirely disappears, and nothing is left but enlarged tubes filled with *Leptothrix* granular matter. This dilatation is due to the proliferation of the granular matter, which increases in the tubes to a considerable extent; this is the cause of the changes just described, and it goes on until the tubes burst and disappear, so allowing the granular matter to unite and form veins or conduits.

We often find islets filled with granulations; this can be explained by the direction of the sections, which cross a conduit filled with *Leptothrix*.

The periphery of the tubes is dilated first, and in a superficial cross section we see surrounded by healthy dentine

isolated tubes, which are enlarged and present the same appearance as those which are in the midst of the decay. Now if vital action had been the cause of these changes, "why were not all the tubes affected at once?" as it is difficult to understand why the pulp should select one tube in preference to another, and "why is the action most marked at the point farthest from the pulp?" That this is the case can be proved by taking an oblique section, when we shall find the dilatation most marked at the surface, and the deeper we go the more normal the tubes appear. Now, if these changes were due to an action going on in the pulp, we should expect to find that the parts nearest the pulp would be affected first, and that all the tubes would be dilated at once, and we should not find isolated tubes enlarged at their periphery. This seems to point out clearly that all the changes are caused by external influence, and are in no way due to an inflammatory process going on in the pulp.

In order that the fungus may grow and present the appearance just described it is necessary for the elementary parts to penetrate the interior of the canals, and that there should be a proliferation of very minute and numerous spores to effect dilatation of the canals, and that the *Leptothrix* should have a power of growth and extension of its own. When caries is well advanced, and there are numerous conduits and clefts filled with granular substance of *Leptothrix* and *Micrococci*, they meet and anastomose, so that the softened dentine is divided into irregular patches, which on the surface are very small, so that the least friction, even the saliva flowing over the part, will cause complete destruction of the tissue.

(To be continued.)

WE are informed that arrangements have been concluded by which Mr. W. Scott Thomson, of Denmark Hill, succeeds to the practice of the late Mr. W. D. Napier, and Mr. E. J. Richardson, of Duke Street, Manchester Square, succeeds to that of the late Mr. Isaac Sheffield.

MUCH criticism has been aroused by the fact that two important Dental appointments in connection with Metropolitan hospitals have been recently conferred on practitioners who do not hold a Dental license.

Hospital Reports and Case-Book.

FRACTURE OF THE ANGLE OF THE JAW.

By F. OGSTON, Jun., M.D., Aberdeen.

ABOUT half-past two one morning last winter a gentleman called on me, stating that he had slipped on the snowy pavement and fallen on his left side, hitting his cheek sharply on a rounded projecting kerbstone, causing him considerable pain at the time, which returned when he opened his mouth. On examining him I observed an excoriated and bruised, but not swollen, patch on the left cheek, and thought I felt crepitation on handling the lower jaw; but when I attempted to locate it I failed to do so, and was about to assure him that the jaw was uninjured, when again the crepitation was felt at its left angle. He was now directed to open his mouth widely, which caused slight pain, but no injury to any of the teeth or extravasation of blood along the gums could be detected. The whole left jaw was then examined by passing the fingers over its inner and outer sides within the mouth, but still no fracture could be detected. The forefinger of the left hand was then pressed deeply down between the tongue and the jaw, opposite the wisdom tooth, and the forefinger of the right hand placed firmly against the angle of the jaw outside the cheek; when by careful and firm manipulation crepitation was again produced over the angle, and it was found that a splinter of bone, about three quarters of an inch in length and nearly a quarter of an inch at its thickest point, had been detached from the angle of the jaw, but which the muscles covering it retained *in situ*. The treatment was merely to let the jaw have rest by eating soft food, in order to let the parts unite, as there was no displacement. I have thought it well to put this case on record, though the injury was a trivial one, as no account of of any such fracture has been found in the surgical literature of England, France, or Germany.—*Lancet*.

British Journal of Dental Science.

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CONGRESSES.

THIS is an age of Congresses—an age which, while reproducing the scientific curiosity and philosophic hunger of ancient Greece, has found itself impelled to revive also the Greek mode of satisfying them. It might seem at first sight that there is little analogy between an Olympian gathering, held beneath a southern sky with all the youth and strength of Greece for actors in the scene and all its grace and beauty for spectators, and a modern British Congress assembled in stuffy lecture-rooms in all its Anglo-Saxon solemnity. But really the final cause of both gatherings is the same; it is only the proximate cause—or if we may so say, the excuse—of each that is different. We doubt, indeed, if the proportion of Olympian or Ischian guests who interested themselves in the contests of those days was any greater than that of the visitors to a modern Congress who conscientiously follow the serious work of the sections. In all such gatherings the main motive with the majority of visitors is, has been, and always will be, a longing to satisfy that gregarious emotion the possession of which has proved itself so great an element of safety and of progress to the human race. But like all other emotions, this one of gregariousness has its weak as well as its strong side—its pit-falls as well as its prizes. As Carlyle has said, it is the “Schwärmen” or *swarming* together of men that leads to “Schwärmerei;” or to translate the untranslatable, it is the largest crowds that beget the biggest crazes. Now we do not wish to suggest for a moment that any increase in the general amount of insanity is likely to follow upon the monster Congress that is to be held in London this week, or the minor gatherings that are

to precede and follow it. But while every one is growing red hot with enthusiasm, and bracing himself up to expect mighty issues, we think it well that some should pause and ponder coolly over the matter and formulate in their own minds how much of actual result and benefit is likely to be attained from all this expenditure of money, effort, and emotion; how much progress for science at large, and how much for the special branch of science which mainly interests us is likely to be derived from the gatherings around us.

Now, one thing which we fancy is fairly evident, from the experience of past Congresses, is that their result is rather in the direction of the popularisation of science than in that of actual addition to it or enlargement of its bounds. The gain is much greater in the way of extension than of intensity. Of course the pioneers of pure science—and their number is after all very much more limited than we are wont to think—need some incitement and encouragement in their work, but we question very much whether, if the ordinary incitements—the truth-hunger and the ambition—of the scientific inquirer fail, any additional stimulus is likely to be derived from the plaudits of the section-room. If a man has the mind of a true scientific inquirer, his own is all the applause he heeds, while if he has an ambition to gratify, the praise of a handful of experts, expressed in private letters or learned journals, means more to him than the clappings of the noisiest meeting. We would even go so far as to say that the excitement of a Congress is more calculated to disturb the waters in the well of truth than to make them purer—that the crude discussions and the indiscriminating praise of a haphazard assembly are likely to prove a perturbing element to the scientific mind rather than to clear up its difficulties and so prepare it for fresh effort. The colloid, gelatinous effusiveness of applausive humanity is inimical to the crystalline clearness and hardness of thought necessary to the scientific worker.

But this much admitted—and we think the whole history of scientific discovery tends to prove it to demonstration—there is still left to Congresses a wide and useful sphere of work in the popularisation of scientific knowledge. Not

only may the general run of visitors, who take a deep interest in science without the time or the talent to conduct original inquiries, gain from the section-rooms a truer and wider knowledge of new views and discoveries than they would be able to gain half so easily in any other manner, but experts in one branch may with facility widen their general knowledge of other branches, and thus in some measure counteract that narrowness of thought and aim which is the great failing of the scientific specialist. Again medical knowledge is very far from being a repository of exact truth. There is much room left for probable evidence, and for difference of view according to opportunities of experience. There are many ways of looking at medical problems which cannot be set down in black and white in learned articles, but which may be advantageously discussed as the occasion arises. It is often from such impromptu interchange of thought that gain is derived when set debates prove vapid and unfruitful. Such loose discussions would be undesirable and unprofitable in the case of the more exact sciences, where every explorer's opportunities for observation and experiment are practically the same; but in medical, and still more in Dental, discussions one man, however humble, may luckily hold a small item of experience which shall piece in with and prove an invaluable ally to the wider observations of more favoured inquirers. Such advantages, however, can hardly be set down as implying gains to science. They deal as a rule rather with the personal side of scientific acquirement, such as can only be handed down by word of mouth, than with the impersonal gains, which can be reproduced in print and so become a "possession for ever." In this respect the modern Congress supplies, with the least possible friction, that fruitful interchange of view and experience which men like Harvey and Linacre had to seek in tedious wanderings to the schools of Italy and France.

So much being said with regard to the advantages of Congresses, let us add a few words as to their dangers. One we have already hinted at—that false enthusiasm that catches fire from the heated concourse of men, and like all emotions that have no sound foundation dies away with the cause that

gave it birth, unproductive itself and yet leaving its subject poorer than it found him. Of such passing enthusiasm for science—a transient magnetic polarity induced in human atoms by mutual propinquity and vanishing with their dispersion—let the thoughtful reader beware. A second danger of Congresses is the scope that they give to the advertising mind to puff itself and its wares, mental and otherwise. Be it admitted that next to earnest and honest everyday work, taking part in the proceedings of a Congress is perhaps the least objectionable method of making one's self known to others. Still caution is needed in the manner of working it. Easy is the descent from the straightforward expression of honestly achieved thought to the clap-trap display of plagiarised and pilfered knowledge. The only safe way to avoid it is by following the time-honoured rule, and by thinking of the benefit of others and not of one's own. Only by a strict adherence to this grand axiom on the part of all can the highest advantages of a Congress be gained, and one at least of its greatest dangers avoided.

THE DEVELOPMENT OF THE INTERMAXILLARY BONE.

THE *os intermaxillare* has been a bone of contention almost ever since anatomy began to be seriously studied, and it can hardly be said even now that the scientific world has arrived at a common agreement with regard to its development. In the sixteenth century its very existence was disputed, and a paper battle-royal on the subject was fought between those two great fathers of anatomy, Sylvius and Vesalius, the former maintaining, the latter denying the existence of a separate intermaxillary bone in man. Vesalius ought to have proved right, for he represented the school of original investigation, in opposition to the school of authority, of which Sylvius was so earnest, not to say so intemperate, a champion. Unfortunately, though the

opinion of Vesalius gained ground for the time, and was generally accepted for a couple of centuries, it was Sylvius who was right all the time; the investigations of the poet Goethe and of Vicq d'Azyr, and, as Mr. Oakley Coles has recently pointed out in his 'Deformities of the Mouth,' the much earlier though forgotten researches of Dr. Robert Nesbitt, having proved once for all that the absence of intermaxillary bones in man can no longer be maintained as a supposed diagnostic criterion between him and the lower animals. But though the existence of the bone in the human subject was thus satisfactorily established, there still remained room for differences of opinion, and for literary polemics on the subject. First, there arose a heated contention as to the relative claims of Goethe and Vicq d'Azyr to priority of discovery, a controversy not entirely laid at rest until the publication of the late G. H. Lewes' classical 'Life of Goethe.' Then various points in the developmental history of the bone became the subject of contention, and remain so indeed until the present day. Among the names of those who have written on the subject—and their name is legion—we need only mention those of G. Fischer—whose book, by the way, contains the best *resumé* of the literature of the subject up to 1880, the date of its publication—of F. S. Leuckart, M. J. Weber, Durcy, Hamy, Albrecht, and the late Mr. Callender. Lastly, Dr. Th. Kölliker, the son of the great histologist, has published a paper on the subject in the current volume of the 'Archiv für Klinische Chirurgie,' in which he challenges certain views recently advanced by Albrecht on the subject.

The history of the development of the intermaxillary bone is undeniably of extreme practical importance, for without precise knowledge concerning it we shall find ourselves quite at sea in our attempts to understand the pathology of such interesting and important deformities as alveolar fissure and cleft palate. It is unnecessary here to explain the details of facial development; it will suffice to say that the palate and the alveolar arch, with their substructure in the two upper maxillæ, are formed from three processes, which start from different points of the primitive cranium

to meet in the middle of the face. Of these the central one starts from the root of the nose and grows downward, while the lateral ones take their origin below and external to the eye, on each side, and grow forwards, downwards, and inwards, till they meet and coalesce with each other and with the central process. Now, if from any cause their growth is defective or irregular, and they are not able to join with each other, we naturally get the various forms of harelip and cleft-palate. According to Albrecht, however, the subject is not so delightfully simple as it would appear from the foregoing sketch, for he has contended—and with fair show of authority—that maxillary fissure is almost without exception intra-incisive, in other words, that the cleft is in the intermaxillary bone itself, one portion of which has coalesced with the neighbouring superior maxilla, while the other has joined its fellow on the opposite side. Albrecht was led to this view mainly by two facts: first, that an incisive suture is found in these cases external to the cleft, and, secondly, that in many cases the median and lateral incisors of the affected side are on different sides of the cleft.

It is this view, which is quite out of harmony with all previously received opinion on the subject, that Dr. Th. Kölliker has recently set himself to discuss. We have at present before us only the abstract of a long series of investigations, a detailed account of which is promised later on, and which will naturally be subjected, by those interested in the matter, to the closest scrutiny. At present we must content ourselves with a brief summary. Dr. Kölliker commenced his research in this way. If, he argued, maxillary fissure is intra-incisive, it must be possible to show two centres of osseous development in each intermaxillary bone. We may here add by way of parenthesis that Dr. Kölliker appears to have overlooked the fact that Leuckart held forty years ago that one of the main differences between the intermaxillary bone of man and the premaxilla of animals is that the former is developed from two osseous centres, while the latter can only boast of one, a view which has been confirmed by Callender only

within recent years. The method which Dr. Kölliker followed was twofold. First he made a series of vertical and transverse sections through the foetal head, and subjected them to minute examination, and, secondly, he macerated foetal heads in a solution of caustic potash, and so obtained a clear view of the young osseous growths through soft tissues rendered transparent by the process.

The results of his first method were—(1) that there is no trace of a divided intermaxillary bone at the ninth week of intra-uterine life, and (2) that the formation of dentine and enamel is entirely independent of osseous development, and that the enamel organs of the two sides are completely fused in the middle line. But, according to Kölliker, it was the second method that proved most fruitful in results, for it appeared to show conclusively that the intermaxillary bone on either side is developed from only one osseous centre. As these results, however, differ in several most important particulars from those obtained by the late Mr. Callender and published in the 'Philosophical Transactions' for 1869, we must leave it to experts to disentangle the truth, only contending here that the singular discrepancy in the different dates assigned to the union of the intermaxillary bone with the superior maxilla by the English and German investigators respectively, points to a very serious defect in one or other mode of investigation.

A subsidiary method employed by Dr. Kölliker consisted in the comparison of numerous cases of alveolar fissure. Here he found that, though the number and relative position of the incisors in such cases was very variable, nevertheless, in the majority of instances, the intermaxillary bone carried all the four; while the incisive suture was absent, not only in the latter class of cases, but also in those in which some of the incisors were found on the superior maxilla. He further adds that this very variability in the position and number of the incisors—as many as six have been found in some cases of alveolar fissure—proves the very slight connection which exists between the development of the teeth and the development of the bone, notwithstanding the close association that ultimately springs up between them. In

this connection we again think that Dr. Kölliker has passed over with unmerited neglect the admirable and minute investigations of Mr. Callender, which must be held to have proved that the anterior wall of the incisor sockets is formed exclusively by the incisor process of the superior maxilla, and not by the intermaxilla. This fact alone seems to explain the variability in the position of those teeth in cases of cleft palate, a phenomenon for which Dr. Kölliker affords a far from satisfactory solution. Altogether we cannot hold that the researches which we have thus briefly epitomised have been successful in settling even the point to which they were directed; and though we agree with Dr. Kölliker that in alveolar fissure the cleft lies between the intermaxillary bone and the upper maxilla, and not in the intermaxillary bone itself, such view is gathered rather from clinical and pathological observation than from embryology, which seems at present, considering the very discrepant results obtained, to offer no reasonable prospect of any surer conclusion than is secured by older and perhaps more commonplace methods of inquiry.

THIS is to be a gala month for the Medical and Dental professions. To-day the British Dental Association holds its annual meeting, and to-morrow begins the great World's Medical Fair, the shadow of whose approaching bulk quite throws into obscurity the little shield-bearer in front of it. We hear that the poor Dental Association will have little scientific provender before it, for the big Congress is going to play the cuckoo.

THE Dental profession, however, in the person of its esteemed representative, the President of the Odontological Society, will have the honour of opening the Congress ball, so far at any rate as the social element is concerned. The *conversazione*, which is to be given by Mr. Arnold Rogers

at the Marlborough Rooms on Tuesday (to-morrow) evening, promises to be one of the most successful of the week. Though there are several other smaller gatherings fixed for the same evening, an unusually large proportion of invitations have been accepted, and the *soirée* bids fair to be the most thoroughly representative gathering of the Dental world that has ever been seen before in this or any other country. A large number of foreign representatives are expected, including, among others, Dr. Arkövy, of Buda Pesth, Professor Wedl, of Vienna, Dr. Kölliker, of Zürich, Dr. Martini, of Turin, and a strong contingent from Paris, viz. Dr. Andrieu and Dr. Brasseur, the President and Secretary respectively of the French Société Odontologique, Dr. Colignon and Dr. Emile Colignon, Dr. Gaillard, Dr. Magitot, and Dr. Mordaunt Stevens. Every one will be fresh and unjaded, and the Dental profession will put on its best social bib and tucker.

INVITATIONS for the *conversazione* have been sent to all the members of the Odontological Society residing on the Continent, and replies have been received from several. But the invitations which could not have been received in time by members who live far off, as in India, Australia, and America, will be left at the rooms of the Society, 40, Leicester Square; or the President will be glad to give or send them to members who will call upon him or acquaint him with their arrival in London.

IN another column we have the pleasure of publishing an article on the International Medical and Sanitary Exhibition from the practised pen of our old friend "Phosphor." We should have been better pleased if the account of the Exhibition could have been a trifle less gloomy, without being untruthful. But that was impossible. So far as the Dental section is concerned the Exhibition is a sham; as much might have been seen any day by taking a Hansom round

to the different depots. The new appliances of which one reads in foreign Dental journals, and which we fondly hoped to have at length the pleasure of seeing and handling, are conspicuous only by their absence. With the exception of the hospital exhibits the whole affair seems a huge pic-nic for the employés, and a grand flirting-ground for Miss Apollinaris. To this the advertising spirit has brought us. Shade of the pure-minded Parkes, alas!

THE thrifty Royal College of Surgeons in Ireland [has just added a hundred and five new Dental licentiates to the profession, a list of whom we give elsewhere. There is a prospect too of another batch in the autumn, the College having decided to hold one more examination under the old regulations. The English licentiates are beginning to grumble at the importation of so much Irish labour. But we ourselves think the profession is to be congratulated on so many of its active members having taken a new status, which, unlike the English licence, pledges them to fight fair. The Irish Dental licentiate promises on receiving his diploma to refrain from advertising and all other unprofessional practices. In this connection we may quote with advantage the suggestion of a correspondent, whose letter, however able, is far too long for our columns. He says, in criticising the proposed expurgation of the Dentists' Register: "Would it not be a far wiser and quicker plan of purging the Register to form a committee and invite the co-operation of every decent man, by which I mean every man who can and has proved he can do good work? And to every such man who will undertake to carry himself professionally and to undergo a course of training at an easily accessible special school, until he has attained a certain standard of technical proficiency, give a diploma without any uncertainty whatever." Such a plan would probably have been impracticable at any time, and is certainly impracticable now. The profession has taken Death and the Register for its allies, and must wait for the one to purge the other. But the quotation we have given illustrates a feeling that is very

widespread amongst provincial practitioners. We want to be honest, they cry, give us some recognition which will make honesty our best policy.

OUR prediction has come true. The British Dental Association has thrown down the gage and insisted on war *à outrance*. Sir John Holker has prescribed (see page 749), and the poor Dentists' Register is to be purged, if possible, of all its vile and offensive humours—to be Bowdlerised until it may be safely left even in the waiting-rooms of the Association of Surgeons practising Dental Surgery. But heroic treatment requires an heroic frame of mind, and the Dental profession is not only called upon to pay for being expurgated, but is expected to sign a promissory note to that effect. According to the journal of the British Dental Association three hundred and fifteen guineas have already been promised towards the Legal Expenses Guarantee Fund, and the cry is still “Give, give.” The journal thinks, however, that the Medical Council may in time be induced to take upon itself a part, if not the whole, responsibility and expense. Vain delusion! the Medical Council has a better use for its princely revenue.

It must be admitted, however, that, according to its own contention, the British Dental Association has some slight warrant for expecting help from the Medical Council. If the profession has fallen into its present quandary through a series of blunders, if the Dentists Act was badly drawn, and the legal opinions obtained on Section 6 were misleading, then the some one who blundered ought to pay. In other words, the Medical Council ought to be held responsible for the mistakes of its advisers. The Association delicately forbears to press this argument. He who is, according to the contention, the cause of all this trouble has been recently taken away from us, and the Association Journal cannot trust itself even to record the fact. We our-

selves, not attaching much blame to the action of the late Mr. Ouvry, need have less delicacy in the matter. Mr. Ouvry, served the Council long and faithfully as its legal adviser, and amidst his many great services in that and other capacities, a presumed slight error of judgment may easily be passed over. Still "to speak no ill of the dead" is a good rule for the Association to follow, though, as the late Professor Partridge used to say, "in that case who are you to speak ill of?"

FOR whose benefit is the Dentists' Register to be expurgated. For the public's? Then the public ought to pay for it. For the profession's? Then our American critic was right, and the Dentists Act was a piece of class legislation, and intended to protect not the public but the profession. That is the dilemma to which the Association exposes itself at the hands of the disinterested spectator. We have no objection to the heads of the profession subscribing for the expurgation of the Dentists' Register. Their motives are as beyond suspicion as their position in the profession is assured. But to tout for subscriptions in every country town is a very different matter. Then the fight becomes a fight for class interests, and we can assure the Association that the sympathies of the public will not be with the assailants.

THE Central-Verein Deutscher Zahnärzte—the parent Dental association of Germany—opens its twentieth annual meeting to-day in sight of the wooded hills and romantic ruins of Schloss-Heidelberg. Happy Central-Verein! Verein will get up early on each of the three days, work hard from nine till five, and in the evening will sit and smoke in the Castle Gardens, or float down the Neckar from Ziegelstein (see Mark Twain's 'Tramp Abroad') amidst the "lüfte" and "düfte," and all the other enchantments of a German evening. Home reached, Bengal lights on the ruined castle, and herring salad.—*Ach! Wunderschön.*

It is very probable that the 'Deutsche Vierteljahrsschrift für Zahnheilkunde' will in the future be published monthly. The Central Association of German Surgeons, whose organ it is, intends to discuss the question at its annual meeting this week. We should regret the change. The 'Vierteljahrsschrift' holds a unique position in Dental literature. It aims at a high standard of literary and scientific excellence, and will bear repeated perusal years hence, when most English and American journals with their passing squabbles and ephemeral politics will appear trashy and inane.

THE gentleman who advised Lord Granville to get a complete set of back teeth as a cure for gout, was not quite such an empiric as he has been set down for. Of course there is no exact scientific link between gout and moulted molars, but there is sufficient evidence to prevent one ridiculing a supposed causal connection between them. Gout, according to Darwin, is one of those inherited variations which, like whiskers and cock's spurs, do not announce themselves till after maturity is reached. The same may be said of carious teeth. Gout, again, the physicians would tell us, has become much less frequent during the last fifty years, that is, since artificial dentures came into general vogue. Gout is not common amongst uncivilised nations, or amongst the rustic population; nor is dental caries. Gout, again, is probably due to a serious fault in the intimate processes of digestion and assimilation, and though we should not expect that an improvement in the coarser processes of gastro-enteric digestion, such as the use of artificial teeth is likely to secure, would necessarily facilitate the more abstruse changes that go on in the blood, yet it is allowable to hold that perfect digestion is much more likely to go hand-in-hand with perfect assimilation than imperfect digestion. The only unfortunate point in the discussion is that, in the experience of most of us, gouty people have exceptionally sound teeth.

HERR PARREIDT contributes to the current number of the 'Deutsche Vierteljahrsschrift für Zahnheilkunde' a very excellent and accurate article on the position of Dentistry in England. It contains, however, nothing that is not quite too utterly stale to the English reader, with the exception of a comparison between the English and German requirements for the Dental licence. Herr Parreidt thinks it very doubtful whether the German diploma would be recognised by the English Medical Council, as it only implies a two years' course of study. But he thinks that the German Dentist could easily pass the English examination, since, with the exception of the comparative anatomy of the teeth, the German course includes all the subjects of the English, and carries them to an even higher standard. He thinks it very desirable that the German requirements should be altered so as to include a three years' course of study, and counsels the German Dental Association to petition the Government to this effect. The article concludes with a free recognition of the great efforts that have been made by English Dentists to advance the science and elevate the profession of Dentistry.

THE Western Counties Dental Association, which will probably be known henceforth as the Western Branch of the British Dental Association, held its third annual meeting on Saturday last, in the lecture hall of the medical school, Bristol. We hope to present our reader with a full report of the meeting in our next issue. At present we can only say that the programme included an address from the President, Mr. T. Cooke Parson, M.R.C.S., and discussions on the following papers, two of which we have the pleasure of printing in the present number:—The Physiology and Pathology of Dental Caries, by C. A. Hayman, Esq., L.D.S.E. Bristol; Continuous Gum Work, by A. B. Verrier, Esq., L.D.S.I. Weymouth; Injecting process of Celluloid, by J. H. Gartrell, Esq., Penzance; Treatment of Disease in the Dentine, by W. V. Moore, Esq., L.D.S.E., Plymouth; Cohesive and Non-Cohesive Gold Filling, by the President,

Thos. Cooke Parson, Esq.; The System of Professional Fees, by R. Rogers, Esq., L.D.S.I., Cheltenham. Mr. Verrier has favoured us with excellent photographs of his furnace, showing the arrangement of the injector, gasoline generator, and foot-blower. At the Bristol meeting he hoped also to exhibit a self-acting air and gasoline generator, and an improved injector for the continuous gum process, which he has recently been engaged in perfecting.

The Dental Examiner.

FORCEPS.

THERE are many practitioners now living and working amongst us who can distinctly remember the day when the key was universally employed for the extraction of teeth, although a barbarous instrument that bore the name of a forceps had been used at a much earlier period, the unique specimens of which exhibited in the museum of the Odontological Society will be particularly interesting to the curious. Several good operators about the same time (1830-36) turned their attention to improving this instrument; and although Mr. Bell still stood up for the key, Mr. James Snell, Mr. Tomes, Mr. Clenden, and many intelligent workers, so altered the more modern instrument that it became the universal favourite. To Mr. Snell is perhaps due the first attempt that was made to make the beak of the forceps fit the neck of every tooth it was designed to extract, and upon this idea Mr. Clenden worked, introducing his first complete set of instruments more particularly for the removal of the molars in 1840. The great drawback of Mr. Clenden's forceps was their bulk and their unnecessary strength, darkening as they did the mouth and altogether obliterating the tooth intended to be removed; but the principle of their construction remains to this day the same, more particularly as applied to the

molar teeth. For the extraction of all single-fanged teeth the earlier designers and improvers of the forceps made one very great mistake ; they made the beaks too short and did not allow them to approximate sufficiently at the points. The incisor, cuspid, and bicuspid forceps were made so thick in the blades and so short that no amount of pressure could drive them sufficiently high on the neck of the tooth to make the extraction of a deceased tooth or fang a certainty. The modern straight forceps, no matter how broad the beaks may be—and they should be of three sizes—meet at the points, and thus the operator can regulate the opening to the size of the fang ; indeed, in many instances where the fangs are conical they will slip out of the socket by the mere pressure of the handles of the instrument. It will readily be understood that a chapter might be written on the extraction of each particular tooth and the many instruments proposed for that purpose ; my desire, however, after glancing at the past, is to say a few words about modern forceps and the improvements that have been suggested in their construction. Exceptional cases may require exceptional treatment and unusual appliances, but nothing can be more foolish than for the student to burden himself with unnecessary apparatus. His great object should be to understand thoroughly and practically all that can be done with each instrument. A good man even with a bad forceps will after years of practice do remarkable work, whereas a forceps that you are *not* familiar with is always a dangerous tool. We lately visited a gentleman more celebrated for the completeness of his cabinet than the skilfulness of his operating. He had most beautifully fitted into their respective places ninety-seven pairs of forceps, and, as he informed us, his collection was not yet complete, but he added “many of these instruments I have never tried.” Another gentleman assured us that he had never seen a tooth or stump he could not extract with one of his six favourite forceps. Both of these gentlemen were unwise, but the practitioner whose instruments were the most limited had the best chance of success.

The perfection of a straight forceps to our mind is one with its blades touching at the points, one quarter of an inch

apart in the centre of the beaks, and one inch in length of beak. We have another instrument that might be named "The Universal" from the many uses to which it can be applied. Its blades are one inch and a quarter in length, touching at the points, with a curve of the fourth part of a circle, the widest part of the internal arch being five sixteenths of an inch. Such an instrument is invaluable, more particularly for the removal of deciduous teeth and stumps in any part of the mouth where much light is needed.

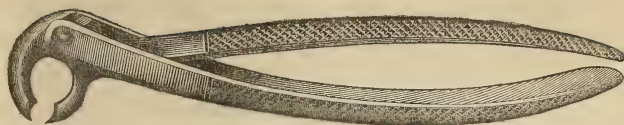
We know some Dentists who tell us that they are obliged to make their own forceps and that their patterns are unique, but having been allowed to inspect them our admiration ceases. It is very true that unless the operator who designs his own tools has some one to carry out his plans he will be very badly off, but we have several forceps makers of known ability capable of doing anything of that character. To men like Mr. Evrard we are indebted for some of our most perfect instruments. Mr. Evrard is an artist, and all he does bears the stamp of perfect workmanship combined with thoughtful adaptation. We have also other makers who deserve the highest praise. At one time "Depôt forceps," as they were called, received but scant attention. A student prided himself upon his set of "Evrard's" or "Collins'," but old firms like Messrs C. Ash & Sons devote so much attention to the manufacture of their various instruments that many of their forceps may be compared with the very best designs.

Some of the newest patterns that have been introduced to the profession are the hawk's-bill lower molar for close bites. These are constructed with two kinds of joints, the box and the movable or pin joint. There is nothing new in the movable joint, although in the hands of some operators it renders it possible to fit the neck of the tooth more perfectly.

The annexed engraving* (Fig. 1) represents one of Ash's hawk's-bill lower molar forceps, the movable or pin joint of which can easily be understood.

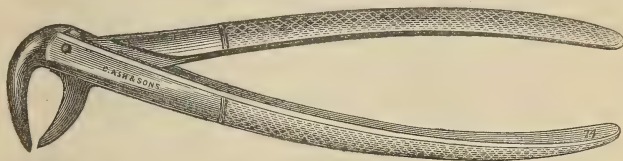
* The engravings are appended through the kindness of Messrs. Ash and Sons.

FIG. 1.



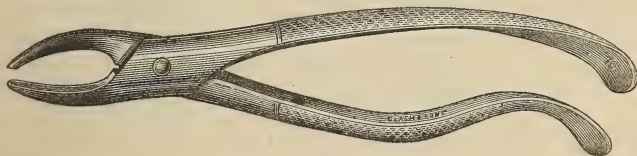
The hawk's-bill has also been constructed for removing lower bicuspid (Fig. 2), and it is a very valuable instrument, but requires some care in its use. The blades should not be allowed to dip any further than the neck can be felt and it should also be kept at the right angle. The lower hawk's-bill is also a valuable instrument for the removal of a first lower molar where disease has progressed so far as to weaken the crown. By grasping the anterior fang its removal is certain, even if the posterior fang should not come with it but require a second operation.

FIG. 2.



An upper stump forceps has also been introduced by Messrs. Ash (Fig. 3). With this instrument, Mr. Lawrence Read did some good work when house-surgeon at the London Dental Hospital. The pattern can hardly be considered a new one excepting in the construction of the bent handles, which enables the operator as it were to see the beaks of his instrument during the operation.

FIG. 3.



All these instruments are well made and carefully tempered, and should be found in the surgery of every Dentist who wishes to avoid any unnecessary risk in operating.

[NOTE.—Dental materials or appliances intended for notice in the “Dental Examiner” should be sent to the Editor at 11, New Burlington Street, W.]

Dental News.

ON PASSING EVENTS.

By “PHOSPHOR.”

THE INTERNATIONAL MEDICAL AND SANITARY EXHIBITION.

IMMEDIATELY it was decided that the International Medical Congress was to be held this year in London I took the liberty in these notes of addressing a few words of advice to the Committee, more particularly to those who would be responsible for the Dental department.* I observed that papers would be delivered and discussions would be held, but I said also that the opportunity should not be lost sight of for holding a grand exposition of all that connects itself with our science.

I remarked “that in a congress like the present proposed meeting a large influx of visitors may be expected, and that original minds will have an opportunity of promulgating their favourite ideas; but speaking more particularly of the Dental body we must say that we *hear* more than we *see*. It is true that occasionally a few specimens of instruments are exhibited, novel pieces of apparatus displayed, and some new materials shown, but this is not enough. We desire to see the apparatus in operation, the material applied, and the instrument tested. Such a demonstration would lend value to the Congress. Enterprising manufacturers should at once unite and arrange such an exposition. It is not enough, as I have said, to *see* the apparatus, a grand practical illustration of its uses should be provided. The whole of the medical world will be interested in testifying to the beauty of our surgical instruments, and no doubt some description of their various uses will be provided, but every department of science and art connected directly and indirectly with the object of the Congress, should bring its handiwork to bear upon the exposition, and the Museum Committee should

* ‘British Journal of Dental Science,’ September 15, 1880.

take care not only to explain, but where practicable, to illustrate, the uses of their exhibits. Military surgery, materia medica, and Dentistry have more particularly many new appliances and materials to show. It is not sufficient for the Dentist, more particularly those only visiting London, to call at the depôts. I should like to see a representative body of practical men setting about to bring together under one roof an exhaustive collection of Dental apparatus and surgical appliances. They have plenty of time now to think about it, and the advanced practitioner will feel disappointed if such an exhibition is not organised."

Thus I wrote in September, 1880, let us examine with what result.

Taking advantage of this Congress, the Parkes Museum of Hygiene decided upon opening at South Kensington a Medical and Sanitary Exhibition, which ceremony took place on the 16th of July, and it is proposed that it shall remain open until the 13th of August. The importance of the exhibits may be gleaned from the fact that there are no less than seventeen sections, some of which merit the most attentive examination, as, for instance, the appliances for Ward and Sick Room, and apparatus used in the treatment of the Sick and Wounded.

Such an opportunity I should have expected would have created some interest among Dental manufacturers, but if I am to judge by the results no such section was needed. In a dark corridor called the Western Gallery a few enterprising men have set up their cases; the whole section has but eight entries and of these two are surgical instrument makers only. This gallery leads nowhere, so it must be looked for and found, as the casual visitor is not likely to come in contact with it, and when found it is too gloomy to create much enthusiasm. We look in vain for anything that might interest the professional visitor, we see six cases laid out with some taste, but novelty is out of the question. Appliances that are old stand side by side with those that are of later origin, and whether it is proposed during the sitting of the Congress to have any one there capable of giving explanations I am unable to decide. In the Medical and Sanitary departments there is great activity. I was presented

with more advertisements and books than I can possibly read in a twelvemonth, and more pills and other medicines were given to me than I should take in a lifetime. I was three times solicited to partake of mineral waters, once requested to drink some natural milk, and actually persuaded by a very attentive young man, looking after the interests of Messrs. Burroughs, Welcome & Co., to drink a glass of beef and iron wine, which I can testify enabled me once more to walk through the Dental department so as to be perfectly sure that I had not missed anything, not even the young man who guards Messrs. Ash & Sons' exhibits, but whose attention was so absorbed in his book that he either would not or could not understand my questions. As I have said, the Dental Department alone was desolation, and anything of a practical or suggestive character was out of the question.

If this is the enterprise we hear Englishmen boast about the sooner they are undeceived the better. I have nothing but praise to bestow upon the six firms who came forward to save us from being totally ignored, but surely the Committee of Management could have shown us something beside a few well-stocked show cases? Better, perhaps, to have been left out of the exhibition altogether than present so ignoble a display.

Claudius Ash and Sons have several cases containing Mineral Teeth, Dental Rubbers, Stoppings, Instruments, Furniture, and Tools. The Dental Manufacturing Company have also Mineral Teeth, Forceps, Rubbers, Vulcanisers, and Lathes. Messrs. W. and J. Jamieson have various appliances, and G. W. Rutterford the same. Smale Brothers have also a handsome case containing Dental Instruments, Tools, and Appliances, and another with Mineral Teeth. I must not forget either Samuel S. White and Son, the only foreign exhibitors, whose collection is not only extensive but varied.

Before closing this preliminary article (for I propose to return to the subject), let me warn strangers that before they make their visit they know where they are going. The neighbourhood abounds in exhibitions, and the aborigines have a vague idea that they are all the same. It is not unlikely that you will be sent to the Natural History Col-

lection, the Portrait Gallery, or the South Kensington Museum proper; you may have perhaps to run through the Horticultural Society's Garden, and may end by fixing yourself in the Museum of Patents. The official catalogue is, like most official things, a delusion and a snare. It neither says what time the doors open or when they close, what you have to pay for admission, or where the Parkes Museum is located; and although I believe there are four places for exit and entrance, the book contains no chart to give you any help. My best advice is to get as near the Albert Hall as possible, and you are not many steps from one of the entrances. Rail will put you down at the South Kensington Station; or the Gloucester Road, or the High Street, Kensington; they are all about the same distance from the Albert Hall. The exhibition is open from ten until dusk, and the charge is one shilling. Omnibuses also run from Charing Cross marked Hammersmith, and others named Islington and Brompton will put you down not far from the end of Exhibition Road. With these directions you may be fortunate and not worn out before you approach the long avenue of sewage and drainage pipes that lead to the Medical Department, and with perseverance you may at length attain the gloomy avenue called the Western Gallery, and enjoy the six show cases that monopolise the glory of the Dental Manufacturers.

THE EXPURGATION OF THE DENTISTS' REGISTER.

COUNSEL'S OPINION ON THE DENTISTS ACT, SECTION 6.

CERTAIN questions in connection with Subsection (C) of Section 6 of the Dentists Act having been submitted to them, Sir John Holker, Mr. R. S. Wright, and Mr. G. A. R. Fitzgerald have advised as follows:

Question 1. What is the true construction of Subsection (C) of Section 6, i.e. is Sir F. Herschell right or wrong in his opinion?

Opinion 1. The 6th Section of the Dentists Act, 1878, enacts that "any person who . . . (C) is at the passing of this Act *bonâ fide* engaged in the practice of Dentistry or Dental Surgery, either separately or in conjunction with

the practice of Medicine, Surgery, or Pharmacy, . . . shall be entitled to be registered under this Act."

We are of opinion that the words "practice of Medicine, Surgery or Pharmacy," refer to legal practice of these professions by duly qualified persons. Even if this were not the natural meaning of the words taken by themselves, we think they must receive this interpretation under Section 34 of the Medical Act of 1858 (21 and 22 Vict., chapter 90) in the case of Medicine and Surgery, and under Section 12 of the Pharmacy Act, 1852 (15 and 16 Vict., chapter 56), and Section 1 of the Pharmacy Act, 1868 (31 and 32 Vict., chapter 121), in the case of Pharmacy.

We are further of opinion that persons who at the passing of the Act practised Dentistry, at the same place in conjunction with another business or profession (not being Medicine, Surgery, or Pharmacy, as above interpreted), are not entitled to be registered under the Act. In each case it will be for the Council to decide as a matter of fact whether the person's real business was Dentistry. They would not be precluded from so finding merely by the circumstance that he occasionally or incidentally, or at some other place, carried on another business, but a person whose real business was that of a blacksmith, watchmaker, or veterinary surgeon, would not in our opinion be a person who was *bonâ fide* engaged in the practice of Dentistry or Dental Surgery," within the meaning of the Act, merely because he added to that business the practice of Dentistry.

Question 2. If wrong, what is the best mode of proceeding to obtain a judicial decision on the Section?

Opinion 2. We think that practically the only means of obtaining a judicial decision will be for the Council to expunge from the Register the name of some person who, according to the view which we have taken, was not entitled to be registered. The question can then be tried on a *mandamus* to restore the name. The Council would no doubt be prepared to give every facility for this purpose.

INTERNATIONAL MEDICAL CONGRESS.

WE hoped to have been able to present our readers with a full programme of the work of the Dental Section, but having to go to press earlier than usual we have been unable to include it in the present issue. We must therefore content ourselves with publishing the following details, for many of which we are indebted to the 'Journal of the British Dental Association:'

SECTION XII.—DISEASES OF THE TEETH.

Linnæan Society's Meeting Room, Burlington House.

Section meetings will be held from 10 to 1, on the 4th, 5th, 8th, and 9th inst., and from 2 to 3.30 on the 4th, 5th, and 8th. On the afternoon of Friday the 5th inst., as we have already announced, a joint meeting will be held with Section VII—Subject, Mercurial and Syphilitic Teeth. The Section will be constituted at 3 p.m. on Wednesday, the 3rd inst.

The following subjects will be discussed:

I.—REPLANTATION AND TRANSPLANTATION OF TEETH.

"L'Etat actuel de la greffe dentaire," by Dr. MAGITOT, Paris.

"Paper on Replantation," illustrated with specimens, by Dr. FINLEY THOMPSON, London.

Dr. Taft, Cincinnati, Mr. Coleman, and Mr. Percy May, will take part in the discussion.

II.—PREMATURE WASTING OF THE ALVEOLI AND ITS AMENABILITY TO TREATMENT.

Dr. J. Walker, London, will open the discussion on this subject. Dr. St. G. Elliott, Dr. Coffin, Dr. Arkövy, and Mr. C. S. Tomes will take part.

III.—THE SHARE TAKEN BY SEPTIC AGENCIES IN CAUSING DISEASES OF THE TEETH.

"An Investigation into the Effects of Organisms upon the Teeth and Alveolar Portion of the Jaws," by Messrs. ARTHUR UNDERWOOD and W. T. MILLES.

"On Alveolar Abscess," by Mr. S. DEAN, Chicago.

IV.—MERCURIAL AND SYPHILITIC TEETH.

"Sur l'Erosion Dentaire, &c.," by Dr. MAGITOT.

Mr. Jonathan Hutchinson, Dr. Quinet, Mr. Lawson, Mr. S. J. Hutchinson, Mr. Moon, Mr. C. S. Tomes, and others will take part in the discussion, which will be held jointly with Section VII, probably on the afternoon of Friday, August 5th.

V.—IRREGULARITIES OF THE TEETH.

"Erosion of the Teeth," by Mr. A. COLEMAN.

"On the Causes of Irregularities in the Position of Teeth," by Dr. GUNNING, New York.

"The Origin and Treatment of certain Forms of Irregularities of the Teeth and Jaws," by Mr. OAKLEY COLES.

"Paper illustrative of Carabelli's Mordex Prorsus and its relation to Prognatheia Ethnologica and Meyer's Crania Progenæa," by Dr. JOSEF ISZLAI, Budapest.

"Civilization in its relation to the Increasing Degeneracy of Human Teeth," by Dr. NORMAN KINGSLEY, N.Y.

"Questions to be propounded for wide circulation, with a view to gathering useful Statistics," by Mr. J. R. MUMMERY.

"The Generalised Treatment of certain Irregularities," illustrated by models, apparatus, &c., by Mr. WALTER H. COFFIN.

The following papers do not fall under any of the above heads :

"On Dental Surgery in the Army," by Mr. GADDES.

"On Some Peculiarities of Gold Foil," by Dr. ST. G. ELLIOTT.

"On the Evidences of Reflex Action in relation to Constitutional Disturbance induced by Interrupted Secondary Dentition," by Mr. D. CORBETT, Dublin.

"Remarks on the Administration of Anæsthetics at the Dental Hospital of London, from the year 1868 up to the present time," by Mr. A. COLEMAN.

"The Restoration of 'Contour,' the Only Way to keep Permanently Separate the Margins of Enamel on Proximate Surfaces, and Prevent Recurrence of Decay," by Dr. MARSHALL WEBB, Lancaster, U.S.A.

"A Communication on Antral Disease," by Dr. TAFT, Cincinnati.

"Investigations into the Conditions of Development of Secondary Dentine," by Dr. ARKÖVY, Budapest.

"Experiments on the Action of Agents used for the Devitalisation of the Dental Pulp," by Dr. ARKÖVY, Budapest.

"On the Reproduction of Bone, with especial reference to the Variable Portions of the Maxillary Bone," by Dr. ATKINSON, N.Y.

"Des Limites Therapeutiques dans le Traitement de la Carie Dentaire," by Dr. MAGITOT, Paris.

"On the Study of Dental Surgery and the means thereto," by Mr. J. TOMES.

Clinical Demonstrations of certain operations, the use of new instruments, &c., will be given at the Dental Hospital, 40, Leicester Square, at 2 p.m., on Thursday the 14th inst., and Monday the 8th, by Dr. MARSHALL WEBB, Lancaster, U.S.A., Mr. A. WOODHOUSE, London, Dr. BONWILL, Philadelphia, Dr. ST. G. ELLIOTT, London, Dr. FINLEY THOMPSON, London, Mr. R. W. WHITE, Norwich, Dr. REDMAN, Brighton, and Mr. PARSON, Bristol. Dr. ST. G. ELLIOTT, London, will exhibit an improved Power's engine mallet, a new saliva ejector, a new form of Bunsen burner, an improved hand mallet, and vulcanite and corundum disks. Dr. BONWILL, Philadelphia, will exhibit a Dental engine modified for

surgical operations, an electric mallet, and an engine mallet. Dr. TELSCHOW, Berlin, will exhibit a nitrous oxide apparatus, and a steam swager and a celluloid injector.

The social gatherings which have a more especial connection with the Dental Section will be the *conversazione* given by the President of the Odontological Society at the Marlborough Rooms on the evening of the 2nd inst., and Mr. and Mrs. Edwin Saunders' Garden party at Wimbledon on the afternoon of the 6th inst.

THE RECENT DENTAL EXAMINATION IN IRELAND.

Two of the successful candidates at the recentst examination for the Dental licence of the Royal College of Surgeons in Ireland, have kindly supplied us with brief sketches of their experiences on that occasion, which will perhaps be found of very *practical* interest to some of our readers.

I.

I HAVE jotted down a few notes of my visit to the "Emerald Isle," and send them to you thinking that perhaps they might be of interest to some of your readers. I had been preparing some time for the L.D.S. examination before I had decided at which college I should present myself. I finally made up my mind for the *Irish*, so I prepared for my journey, and left Euston Station on June 21st last, taking a *return tourist* ticket to Dublin, which cost me £1 18s. 6d. I broke the journey at Chester and proceeded next day to Holyhead, where we duly arrived about 4.45 p.m. The steamer being in readiness, we started for Dublin at 5 p.m., and we arrived safely at 10½ p.m., after a somewhat stormy passage. I was agreeably surprised to find the city gay with the electric light, and still more agreeably surprised with the size and appearance of the public buildings. I had now three clear working days before the examination, and I resolved to keep to my books, and to break the tediousness of study I used to take daily excursions around Dublin by the *tram cars*, 'buses being unknown in Ireland. At last the long looked-for but dreaded 27th June arrived, and I presented myself with many others at the Royal College of Surgeons, Dublin. And there in the vestibule might have been seen many an anxious looking face, and not the least prominent among them myself. At last my number was called, and I was ushered into the examination room, in which were arranged a great number of small tables, a separate one for each candidate. I eagerly perused the

questions, and having assured myself that they came within my range of knowledge, I settled down to work and finished about forty minutes before the limited time (two and a half hours). On leaving the room I looked round and truly felt sorry for some of those anxious faces. The *viva voce* examination began at 4 p.m. each day. I heard to my dismay seven had been rejected out of the first batch. My turn came at last, and in all anxiousness I once more made my appearance in the antechamber of the College, and in company with five others followed the porter up to the examination room, where we were called in one by one; seated at six different tables sat six dignified looking gentlemen, each ready to receive a candidate. Of these gentlemen three are Dentists and three medical men. The Dentists ask you everything and anything relating to Dentistry, surgical and mechanical. The doctors take you on anatomy and general surgery of the head and neck, treatment of simple and compound fractures, necrosis, &c., and Dr. Richardson, the chairman, is very sweet on the "development of the teeth," structure of enamel, dentine, and cementum, &c. I must say I was treated most courteously by each of the *examiners*, and on the whole I considered the examination a very fair one, and thoroughly practical. To my mind a man who cannot pass such an examination is certainly not fit to practise as a Dental Surgeon. I would strongly advise all intending candidates for the October examination, which is the last one held under the old regulations, not to go over to Dublin with the idea that they have simply to pay their fee and get their diploma. The examination is a thoroughly practical one and requires methodical preparation. I would further advise candidates to obtain the assistance of a L.D.S., who has himself been through the examination and knows what amount of preparation is necessary.

II.

INTENDING candidates must apply to the Registrar of the Royal College of Surgeons of Ireland, signifying their intention of attending the examination at the specified date. They are by him supplied with a regular form of application, which contains a declaration that the candidate is over twenty-one years of age, is of good moral character, and has abstained from advertising for at least two years previous to the date of the examination. This form must be signed by the candidate and attested by two medical practitioners, members of one of the Royal Colleges of Surgeons, and two "Dentists

of repute." It appears, however, that *abstention* from advertising within the prescribed period is not an absolute necessity, unless a want of verity on the part of the candidates in filling up the form of application, as well as a culpable unconcern and indifference exhibited by their sponsors with regard to the truth of the statement to which they attested, has heretofore deceived the Board of Examiners and admitted the advertising Dentist. At the last examination it was notorious that there were those admitted who had up to within a few months of the examination advertised, not only their name and address, but also their scale of charges. The form is returned to the Registrar, who submits it to the Dental Examining Board, and if the candidate is accepted he receives a numbered ticket, which admits him to the examination. The examination is partially written, partially oral. All the candidates are admitted to the written examination on the first day at the same time; each is supplied with six papers, each containing two questions, one only of which must be answered. All intercommunication between candidates is strictly prohibited, also consulting notes, books, &c., the penalty being immediate expulsion if detected. The examiners will give information how the answers are to be signed, &c., if required. Candidates who ask for an explanation of a technical form are informed that it is their province to answer questions not to ask them. The *viva voce* examination is conducted by six examiners, three of whom examine on the anatomy of the head and neck and surgical operations, the medical treatment which may possibly be required for lesions of mouth, tongue, palate, &c.; the diagnosis and treatment of the various diseases to which these parts are liable; while the other three confine themselves strictly to surgical and mechanical Dentistry, extraction of teeth and accidents which may occur in connection with the operation; regulating irregular dentures; models shown, state age, and what your method would be of regulating a given irregularity; filling with gold, cohesive and otherwise, contour fillings with gold especially; fang filling; instruments used for different kinds of fillings; engine and other mallets, how to use; rubber dam, how to apply and retain in position; making, repairing, and adapting artificial dentures on gold, vulcanite, and celluloid; taking impression of the mouth in plaster and other materials; treatment of the mouth prior to obtaining the impression, &c. The candidates are admitted in batches of six, and each one examined separately by each of the six examiners, all of whom he has to satisfy. Altogether the examination appears

calculated to thoroughly test the knowledge of the candidates as regards surgical and mechanical Dentistry, theoretically and practically. That it is not so very easy to obtain this diploma as it was at one time pronounced to be, at least as the examinations are now carried out, may be inferred from the fact that no less than one third of the whole number of candidates were ploughed, and though this may possibly be partially accounted for by the number who rushed in at the last in order to obtain the diploma if possible before the doors were shut altogether (it having been understood that this was to be the last examination sine curriculo); nevertheless, there are some who failed who had certainly made great exertions to prepare themselves for examination.

PASS LISTS.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following is a list of the candidates who passed the Dental examination of the Royal College of Surgeons, Ireland, on June 27th, 1881, and the following days.

Alexander, Mathew F. C.	Gardner, Charles, Gloucester.
Ash, Charles George, Chester.	Gibbon, Thomas, Stockport.
Baker, William.	Gibbs, George.
Bedford, Arthur, Doncaster.	Glaisby, Walter, York.
Beer, James Henry Elias, Calcutta.	Gover, George.
Bell, Frank, Tunbridge Wells.	Greaves, James Edward, Leeds.
Berry, George John B., Barnstaple.	Greenhalgh, C. A.
Blandy, Henry, Nottingham.	Griffiths, H. W., Newport.
Bloom, Joseph, Dublin.	Hall, George Frederick.
Bowden, William J., Belfast.	Hall, Thomas Sheridan M.
Brown, Thomas M., Glasgow.	Hall, William.
Browne, E. Warne.	Hardman, John, Manchester.
Browne, Herbert.	Hargraves, Richard John, Bacup.
Browne, Walter, Nottingham.	Harris, Arthur, London.
Buckley, Thomas, Hollinwood.	Hartley, William Roland, Birkdale.
Buss, James George, Paris.	Henderson, John, Liverpool.
Cabedo, Gabriel C.	Houghton, Edwin, Manchester.
Colebrook, Frederick, Jersey.	Howcroft, Thomas Charles.
Corbett, Edward, Dublin.	Hughes, George Greenwood, Oldham.
Crocker, James Lord, London.	Hutchinson, Berks T., Capetown.
Cullingford, Thos. Fred., Cheltenham.	Johnson, Sidney Perrins, Lincoln.
Dawson, Frederick Geo., Doncaster.	Jones, John Henry, Manchester.
De Lessert, Alfred Alex., Aberdeen.	Jones, William Cadwalladr, London.
Dopson, Charles Burt, Liverpool.	Jones, William Gresley, Eccleshill.
Dougan, William, Manchester.	Kitson, Thomas N.
Duncan, James Stark, London.	Lambe, Felix, London.
Elliott, William Thos., Thrandeston.	Lee, William, Northwich.
Faulkner, Harry Rawlinson, London.	Lord, Walter Frewen, London.
Faussett, William, Cambridge.	Loosemore, John W.
Fay, Arthur Louis, Cannes, France.	Maitland, Louis, London.
Ferguson, John F., Carlisle.	McGregor, Alexander, London.
Foster, Edward George.	Marks, John, Newton Abbot.
Fraser, Alexander.	Middleship, Wm. Archibald, London.

Miller, Nathaniel, Preston.
 Minshall, Fred. Wm., Stoke-on-Trent.
 Moore, John.
 Mount, George, Dieppe.
 Murison, Alexander Stuart, Aberdeen.
 O'Doherty, William J., Dublin.
 Olver, Henry Wren, London.
 Packe, George J., London.
 Palk, William, Bridport.
 Palmer, Edwin.
 Peaty, Charles Frederick, Newport.
 Pillin, William Edward, London.
 Price, Rhys, London.
 Pryor, John Waite, Dover.
 Richardson, John Emerson, Derby.
 Ridout, George Vatchel, Leeds.
 Ritson, Joseph John, Penge.
 Rhodes, Wm. Atkinson, Cambridge.
 Roberts, Edgar Hughes, Walsall.
 Sanderson, John, Southport.

Scott, Alexander Thomas, Ramsgate.
 Searle, Samuel, Newton Abbott.
 Sherburn, Frederick.
 Sibson, Daniel.
 Smith, John.
 Stewart, William Henry.
 Sutcliffe, Herbert Walton, Bradford.
 Symons, Nicholas Bray, Exeter.
 Taylor, Charles Douglas G., Glasgow.
 Taylor, John.
 Tippler, Thomas.
 Walker, Francis Drury, Doncaster.
 Walker, Roger, Manchester.
 Warr, John Henry, Dawlish.
 Weeder, William, Halifax.
 West, William, London.
 Westlake, Bernard, Windsor.
 Worster, Josiah William, London.
 Wyld, Ellis, Manchester.

There were upwards of 145 candidates.

The following are the examination papers in the recent examination for the Dental Diploma of the Royal College of Surgeons, Ireland. The candidates were requested to answer only one question in each paper.

1. Give the nerve supply of the teeth of the upper jaw.
 2. Give the attachments and relations of the mylo-hyoid muscle.
-

1. Describe the best materials in use for procuring a perfect mould of an upper capillary set.
 2. What treatment would you recommend for the accidental swallowing of an artificial denture?
-

1. In what structure of a tooth would you look for the contour lines?
 2. What kind of nerve, as regards function, is the ninth cranial nerve?
-

1. Give the symptoms and causes of, and suitable treatment for, purulent accumulation in upper maxillary sinus.
 2. Should a portion of either maxillary bone be broken from tooth extraction, state how you would treat the fracture, and explain the process by which it may be repaired.
-

1. Describe the formation and progress of an alveolar abscess.
2. When no treatment is adopted for a carious tooth, give

the probable consequences, in the order of their occurrence, from the first appearance of caries to the loss of the tooth.

1. Fang-filling, when necessary, and the materials employed?

2. A front after filling becomes discoloured; explain the different causes and the remedies you would employ.

THE GERMAN DENTAL ASSOCIATION.

THE German Dental Association, if we may so be allowed to translate the 'Central-Verein Deutscher Zahnärzte,' will hold its twentieth annual meeting at Heidelberg, August 1st to 3rd. The following is a list of the subjects set down for discussion.

1. Are there any definite indications for replanting a diseased tooth?

2. What is the best way of allaying the sensitiveness in those cases where the neck of the tooth is exposed but not carious?

3. The treatment of pulpitis by trephining.

4. "Calorific fluid" as a local anæsthetic.

5. On the part played by septic matter in the causation of disease of the pulp and periosteum.

6. The present zinc phosphate of commerce, its advantages and possible disadvantages.

7. New instruments and modes of operating.

In addition to these questions, many of which are calculated to rouse ardent discussion, the following papers will be read.

"Bandages in Fractures of the Jaw," by Herr Sauer.

"Treatment of Alveolar Suppuration," by Herr Witzel.

"Interstitial Cavities in the Substance of the Teeth, with Microphotographic Demonstrations," by Herr Schlenker.

"Infection by Catgut Ligatures," by Herr Buschendorff.

"Dental Surgeon and Dental Mechanic," by Herr von Langsdorff.

APPOINTMENTS.

BENNETT, STORER, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng., has been appointed Assistant Dental Surgeon to the Middlesex Hospital.

CLARKE, JOHN C., L.D.S. Eng., has been appointed Honorary Dental Surgeon to the Belfast Royal Hospital and Medical School.

COUNCELL, E. A., L.D.S., R.C.S. Eng., has been appointed one of the Assistant Dental Surgeons to the Liverpool Dental Hospital, in the place of J. G. Roberts, L.D.S., R.C.S. Ireland, elected a member of the Honorary Dental Staff.

FOX, FRANCIS, M.R.C.S., has been appointed Dental Surgeon to the Victoria Hospital for Children, Chelsea.

KEEN, EDWARD, M.R.C.S., has been appointed Acting Dental Surgeon to the Great Northern Hospital.

VACANCIES.

NATIONAL DENTAL HOSPITAL.—Dental Surgeon. Applications by the 10th August.

NATIONAL DENTAL HOSPITAL.—Lecturer on Dental Surgery and Pathology. Applications by 10th August.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck Street.—Dental Surgeon. Applications by 1st August.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

AN AMERICAN VIEW OF ENGLISH DENTAL POLITICS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I have no idea who the English correspondent of the 'Missouri Dental Journal' may be, but I make bold to say that he does not even fairly represent the views of his American *confrères* in this country, much less of those who have remained on their native soil. So far from viewing with disgust the course of Dental politics in England, I feel sure the profession in America are only too ready to bestow upon it that sincerest form of flattery—imitation. Only within the last few months another State—the State of Illinois—has been added to those which had previously passed laws to protect their population from incompetent Dental pretenders. There may come a time, as you suggest in your admirable leader on the subject, when the general education of the people will be so good that there will be no necessity to protect them from quackery, for they will be able to discern it for themselves. But so long as the teaching of the simplest facts of physiology and hygiene is neglected in English schools—from the highest down to all but the lowest—I see no ground to hope that the public will prove

themselves any less gullible or less liable to fall a prey to the first advertising charlatan who promises them things which the slightest and most elementary knowledge of science would tell them were impossible. Only those professions can safely be left unprotected where—as in the case of the bar, for instance—the clients are thoroughly well able to criticise the article they purchase. If one had to choose one's own barrister and could go to him directly for advice, instead of relying on one's attorney to select a reliable opinion, there would be a necessity for a stringent entrance examination to the bar, instead of the make-believe that now does duty for one.

All this, you will say, sir, has little to do with Dentistry. But I think you will admit that the more we rest our politics on broad principles the less likely shall we be to meet with such insulting criticisms as the correspondent of the 'Missouri Dental Journal' has hurled at the head of the chief men in our profession, men whom, if he knew them only half as well as I do, and had a tithe of the gift of reverence that I humbly flatter myself I have, he would bow down to and thank for all that they have done, through obloquy and opposition, for the welfare of the Dental profession in this country and wherever the English tongue is spoken. The course which these men have taken and carried to a successful issue will strengthen the hands of those reformers across the Atlantic who, in different States, are wishing to follow the lead of the English legislature, but are defeated by the selfish efforts of men who have an interest in keeping the Dental profession unrecognised.

One or two more criticisms and I have done. The correspondent of the 'Missouri Dental Journal' makes it his chief complaint that only two American diplomas are recognised by the Medical Council. Well, I do not see that we have much to complain of so long as the Council refuses to recognise any foreign medical degree at all as giving a right to a place in the Medical Register. Again, the correspondent makes much capital out of a statement made by some one in authority, that only fifty Dentists a year will be added to the Register. Now, setting aside the facts that a very large number of the Dentists on the Register are not Dentists in the sense in which the term will be understood in the not far distant future, and that the requirements of the population would be thoroughly met by the three thousand and odd practitioners who, according to the actuary's statistics will be on the Register of A.D. 1920, I cannot say that I have so poor an opinion of the potentialities of our existing Dental educational establishments as to limit

their annual output to fifty Dental licentiates. Though compelled to limit it in some respects, we leave quite sufficient play to the law of supply and demand, and as the general run of fees increases with increasing competency, I have no doubt that more and better men will be tempted to join a profession which—I say it with all my heart and soul—is, so far as regards the suffering relieved by it, one of the best and noblest on God's earth.

With apologies for this interminable letter,

I am, &c.,

AMERICANUS.

THE EXPURGATION OF THE DENTISTS' REGISTER.

To the Editor of the 'British Journal of Dental Science.'

SIR,—The British Dental Association appeals for funds to purge the Register. Will it do any good? In this town there are about five chemists, the same number of assistants, and four *bonâ fide* Dentists registered. The chemists never have and do not intend to practise Dentistry beyond pulling out a tooth or selling some tincture for the cure of toothache. They none of them (with one exception) assume the title of Dentist and the one who does only extracts teeth; further, most of the assistants began their apprenticeship with the expectation of some day being in practice for themselves, and it would be very unfair to prevent them from attaining that end. Of the four Dentists, one has been in practice from twenty to thirty years, two are licentiates, and one a D.D.S. I am quite convinced that this attempt to purge the Register will do no good so far as this town is concerned, and I have little doubt that this is only a fair specimen of many other towns. Let our Association well consider whether it is striving for the good of the many or encouraging a spirit of jealousy that may do a vast amount of harm and can do very little good. Money if spent in endeavouring to bring us together and to increase our knowledge of our profession and of each other will at any rate do some good, and can certainly do no harm.

I am, &c.,

GEO. BEAVIS.

Newport, Monmouth; July 16, 1881.

Notes, Queries, and Replies.

NOTICE.—Owing to a press of matter, much of which is of passing interest and will not keep, the Editor finds himself very unwillingly compelled to delay inserting the communications which have been received for this column until next issue.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.

ANSWERS TO CORRESPONDENTS.

- R. P. GLEESON.—Your impression is quite right. We should advise you to bring the matter within the cognisance of the College.
- "EXCELSIOR."—We regret to say that your letter is too long for insertion. We have made a brief allusion to it in our editorial paragraphs.
- "PIS ALLER."—There will be another examination under the old rules by the Royal College of Surgeons in Ireland in October next.
- "STUDENT."—The Students' Supplement will be published as usual in September.
- "L.D.S."—The Licentiates' List will appear as usual in the 'Medical Directory' for 1882.

Communications have been received from the Registrar of the Royal College of Surgeons, Ireland, George Beavis (Newport), R. Rogers (Cheltenham), Alex. T. Scott (Ramsgate), R. P. Gleeson (Dublin), J. W. Cunningham (London), W. H. Waite (Liverpool), T. Cooke Parson (Bristol), "Pis Aller," W. Bowman Macleod (Edinburgh), W. V. Moore (Plymouth), Storer Bennett (London), Andrew Clark (London), Dr. Wadham (London), J. G. Roberts (Liverpool), Dr. Norman Moore (London), "Excelsior," J. Hamilton Craigie (London), "Student," Charles A. Hayman (Bristol), Secretary of the International Medical and Sanitary Exhibition, Ashley Barrett (London), Thomas Fletcher (Warrington), Talfourd Ely (London), "L.D.S.," A. B. Verrier (Weymouth), Dr. Shepherd (London), S. Allechin (London), F. C. Clarke (Belfast), C. S. Tomes (London).

BOOKS AND PAPERS RECEIVED.

'Lancet.' 'Medical Times and Gazette.' 'British Medical Journal.' 'Pharmaceutical Journal.' 'Chemist and Druggist.' 'Deutsche Vierteljahrschrift für Zahnheilkunde.' 'Correspondenzblatt für Zahnärzte.' 'El Progreso Dental de la Habana.' 'Missouri Dental Journal.' 'Le Progrès Dentaire.' 'Journal of the British Dental Association.' 'Prospectus of St. George's Hospital Medical School.' 'Prospectus of London Hospital and Medical College.' 'Prospectus of Middlesex Hospital Medical School.' 'Prospectus of St. Bartholomew's Hospital Medical School.' 'Abergavenny Chronicle.' 'Gazette Odontologique.' 'L'Odontologie.' 'Westmeath Guardian.' 'Prospectus of University College Medical School.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

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AN ADDRESS DELIVERED DURING THE INTERNATIONAL MEDICAL CONGRESS, AT THE OPENING OF THE SECTION OF DISEASES OF THE TEETH.

By EDWIN SAUNDERS, F.R.C.S.,
Surgeon-Dentist to the Queen; President of the Section.

GENTLEMEN,—Before assuming the duties and responsibilities of President of the Odontological Section of this great Congress, permit me to thank you for the honour you have conferred upon me in electing me to that high office; and let me assure you that it will be my earnest endeavour to justify your choice, however I may fail to satisfy my own, and your, well-warranted expectations. And, indeed, were it not that I am sustained by the kind co-operation of two vice-presidents and a secretary, in whom our profession feels a just and legitimate pride, I might well feel oppressed by the onus of doing full justice to the position on so august an occasion. Nor was it, I am free to admit, until I had the permission of the Executive Committee to call around me, as a Council, some old and tried associates in professional work, that I began to experience the requisite energy and confidence. And having made this personal avowal and confession, I turn to the distinguished company before me, who have done us the high honour to visit our too great, but not too gay, capital, and to become for a short time, and for our signal profit, our guests at this great intellectual banquet. Permit me, gentlemen, on behalf of the English members of the Congress, on behalf of our largest Society, the Odontological Society of Great Britain, now in the twenty-fifth year of its somewhat chequered, but, on the whole, prosperous existence, and on behalf of the whole

body of the Dental profession in England, to offer you a hearty welcome, and to assure you of our earnest desire to render your too brief visit both profitable and pleasant. We hail the happy occasion of our friendly intercourse, and we trust that friendships, begun under such benign auspices, may continue and progress in interest through many prosperous years. Such gatherings as these, with the pleasurable amenities they involve, do much to soften and refine the manners, to quicken the intellect of all concerned, and to remove misconceptions of national or individual character which are apt to be engendered by isolation and want of friendly intercourse. Congresses such as that at which it is our privilege at this time to assist, serve a great social purpose apart from the intellectual and scientific aims to which they are more immediately directed. It is much that they afford an opportunity and a stimulus for intellectual effort, which might otherwise, with man's proverbial procrastination, never be called into action. But in these days of an ever-teeming press, and of facilities for the free intercommunication of ideas, this is subordinate to the advantage of personal knowledge of the individual, and the living interchange of thought. The modern congress, which seems now in high favour, owes its existence, or shall it not be said, its revival, to the intellectual activity, joined with a wide eclectism, which is a characteristic of our times, and which seeks to assimilate to itself whatever is of value in the past, or in other lands, whether in social manners and customs, in matters of dress or daily life, in schools of architecture, or in the realms of science or art. The generally accepted idea of a congress is, if I mistake not, more than a fortuitous assembly of persons engaged in similar pursuits and drawn together by community of thought and interest. It is the deliberate coming together of distinguished men or of experts, of set purpose and for a specific object, the persons constituting the Congress being invited and selected with a due regard to their knowledge of the subject for the consideration of which it has been convoked. This is especially evident in political affairs, and notably in a recent instance in a northern capital, where the great countries of Europe, represented by their most distinguished statesmen and diplomatists, met in solemn conclave for the rectification of national frontier lines, and for the determination of other questions of vital importance which must otherwise have been left to the rude arbitrament of the sword. And may we not indulge the hope, in the interests of an enlightened humanity, that this high function may be more extensively employed to interfere between the unbridled

ambition and lawless rapacity of states, more powerful than just, and the resolute resistance to subjugation or spoliation on the part of the oppressed, protracted, it may be, to the bitter end through years of carnage and misery? So might the world be spared the saddening spectacle of "man's inhumanity to man," and the fair page of contemporary history be unsullied by the foul blot of the blood-stained record. Ours, however, is a congress of peace, and we are happily not called upon to compose animosities or to adjudicate upon conflicting claims. The triumphs which we are met to celebrate are those of man's skill in limiting and repairing the ravages of disease, our victories, those over nature herself, when she is forced to yield up another of her secrets as the reward of patient research or of well-conducted experiment. Our international reunion may be regarded as a periodical taking stock of the gains of science, of improved appliances, of more accurate means of diagnosis, and of more efficient modes of treatment in the various departments of medical practice. And for the better and fuller carrying out of this intention, it has been found advisable, having regard to the present advanced state of medical and surgical science, to divide the work of the Congress into sections.

These sections, carrying on their work simultaneously, and the work of each section being complete in itself, greater fulness and accuracy of detail are secured without any sacrifice of the unity of the one grand result, as the work of each section is the necessary complement of the whole. In that with which we are more immediately concerned, one of the youngest departments of surgical practice, and which for the first time enjoys its own distinct and prominent position, considerable interest will attach to the question of education and the regulations which in each country govern the entrance into the profession. The former part of this very important subject will, I trust, shortly be brought under the notice of the Congress by one, than whom none is at once more fully informed and more entitled to speak with authority—I mean Mr. John Tones, who has in this direction, during the last quarter of a century, done much to advance the interests and to establish a strong claim on the gratitude of the profession. Nor would the English sense of justice and fair play be satisfied without an acknowledgment of the more recent services of his colleague in this good and great work—Mr. James Smith Turner, without whose unsparing devotion of time and energy it could not have been brought to so successful an issue. To the joint action of these two gentlemen, to the lawyer-like precision and forethought of the former, no less than to the vigilance

and promptitude of the latter, is the profession indebted for that invaluable piece of legislation—the Dentists' Act of 1878. It must not be forgotten, however, that to our foreign friends the nature of the enactment is of greater interest than the means or the persons by whom it was obtained. By the provisions of this Act, then, which came into operation on August 1st, 1879, it is forbidden to any one to use the word Dentist, Dental practitioner, or other title implying that he is qualified to practise Dental Surgery, unless his name appears on the Register of that body; thus giving to the Dentist the same protection and privileges as are enjoyed by the physician and surgeon in this and other countries. By this measure, the opprobrium was removed which so long rested on the Dental profession in this country, that it included a large proportion of ill-qualified practitioners, and in many cases persons who were unsuccessful in other pursuits, and who were attracted to it by the absence of restrictions or of preliminary examination. By provisions of this Act, introduced by Sir John Lubbock, not only are the public preserved from the extortion and malpraxis of the ignorant and unprincipled, but a grave discouragement is removed from the educated and honest practitioner. For it is only in human nature that high aims and honest zealous work should languish in the atmosphere of indifference and lack of appreciation. In thus obtaining legal sanction for the organisation of the profession, it was desired strictly to maintain its connection with the Royal College of Surgeons, as it was rightly felt that separation from that body would involve abdication of the status which it had hitherto enjoyed. And when the College had been memorialised on the subject, showing that the curriculum for the diploma for general surgery, which was the only qualification then open to him, did not comprise certain matters of the first importance to the Dental practitioner—that in fact, the entire subject of Dental Surgery found no place either in the teaching or at the examining board—an arrangement was accepted for more fully meeting the requirements of the case. Accordingly, a conjoint board of examiners, consisting of half surgeons and half specialists, was created for the licentiateship of Dental Surgery, with a corresponding modification of the prescribed course of study, eliminating much that was of little value, and substituting what was regarded as specially necessary in that particular line of practice. Thus, by varying but not lowering, the educational standard, an arrangement has been effected, which, if not in all respects perfectly satisfactory, goes far to meet the reasonable views and wishes of those who have the welfare

of the profession at heart. With this bare outline of our proceedings in reference to the organisation of the profession before us, we shall listen with interest to what has been accomplished in other countries in the same direction, not, it may be hoped, without mutual profit and advantage.

Gentlemen, I feel that I ought not longer to tax your attention; but, having declared this section of the Congress open, that we shall prepare ourselves to listen with appreciation and enjoyment to those varied and valuable contributions to the literature of our specialty with which we are so liberally favoured both from home and foreign sources. And first your attention will be asked for the always welcome utterances of one whose contributions to science during a long series of years, many of them having a direct interest for our own specialty, and almost unparalleled for number and value, have made his name a household word in both hemispheres—I mean Professor Owen. We feel grateful for his presence here to-day, which will confer *prestige* on our proceedings; and we tender him, with our thanks, our sincere felicitations that he has been able to witness, in unimpaired health and energy, the realisation of his hopes and wishes in the completion of that noble structure, the Museum of Natural History.

ON THE DIFFERENT FORMS OF ATROPHY OF THE TEETH.*

By M. PARROT, Paris.

THE effects of hereditary syphilis on the teeth, though less common than other signs of the disease, are far more lasting, persisting for centuries after the death of the individual, and bearing testimony to the great antiquity of syphilis. The lesions present themselves almost with mathematical accuracy, not only in the way in which the different teeth are affected, but also in their chronological relations. The different modifications, all of which may be classed under the common term of atrophy, are as follows:

1. Cupuliform atrophy.
2. Sulciform atrophy.

* Extract from a paper entitled "Hereditary Syphilis as the Constant Cause of Rickets," read before the Section of Diseases of Children of the International Medical Congress, on Friday, August 5th.

3. Atrophy of the cusps.

4. "Atrophie en hache" and

5. Hutchinson's atrophy.

The first, which is by far the most common form, especially attacks the permanent incisors. It is characterised by small superficial depressions, rarely isolated from each other, and almost always disposed in horizontal lines in the crown. The *second* variety appears in the same situation as the first, but in the form of parallel furrows. *Atrophy of the cusps* attacks all the teeth, but chiefly the first molars, and the permanent canines. It causes a division of the crown into two distinct but unequal portions. The portion furthest from the gum is smaller than normal in all its dimensions, is irregular, with pointed cusps, and seems, as it were, set in the lower portion. The above three varieties are often found in the same tooth, they are the result of pathological modifications of the dentine and enamel, and date from the inter-alveolar period of dental development.

The fourth and fifth varieties, on the other hand, do not make their appearance until after the eruption of the teeth, and are the result of caries or detrition of parts predisposed to these changes by reason of a congenital alteration in the enamel. "Atrophie en hache" only occurs in the upper incisors. For a certain time the portion nearest to the gum is only eroded, and as the cutting edge remains intact, the appearance of a steel hatchet is produced. In Hutchinson's atrophy, on the contrary, the part attacked is the central portion of the cutting edge of the incisors which is rapidly worn away owing to the thinning of the enamel. Hence results a notch of variable depth, and triangular or crescentic in shape.

Atrophy may attack all the teeth with the exception of the second and third molars and the permanent bicuspid. Its existence in patients, the subjects of hereditary syphilis, together with the coincidence between the time of its evolution and the active period of that affection, entitle me to refer it to that cause and authorise me in refusing to accept—if not absolutely, at least in the vast majority of cases—any other etiology. As a matter of fact the infantile pyrexiae, of which so much has been said, do not as a rule make their appearance until after the second year, when the formation of the teeth is already complete; and as for the convulsions which, in the eyes of M. Magitôt and his pupils, play such an exclusive part in the etiology of erosion, I reject them altogether. First, because in the majority of cases the alteration has been produced or at any rate has commenced during intra-uterine life, the neuropathic accidents of which are

unknown; secondly, because the intensity and the depth of the lesions, while accurately corresponding to the duration and intense action of hereditary syphilis, cannot be made to square with the relatively short period during which the eclamptic attacks occur; and finally, because the two last molars are never attacked, a phenomenon easy of explanation, on my theory, the activity of the syphilitic poison having spent itself by the time these teeth are developed, but entirely contradictory to the opinion of M. Magitôt, since convulsions are far from being rare at that period of infantile life.

THE SYSTEM OF PROFESSIONAL FEES.*

By R. ROGERS, L.D.S.I., Cheltenham.

For some time past I have felt that the subject I am about to bring under notice is one of the greatest importance to our profession generally, particularly now when our position as a profession is by law raised to that status which I hope I may not be considered egotistical in saying it so richly deserves. For the future no one can enter our ranks without having gone through a thorough educational course both general and medical; this has been made compulsory by the Dentists' Act of 1878. My object in reading this paper is more to create a discussion than to lay down any rule of my own with regard to what should or should not be considered a professional fee for certain operations in Dental surgery. That to a certain extent must always depend on the operator himself, he best knowing his own abilities and the class of patients he has to deal with. I am here presuming that all operators will conscientiously do the best for their patients. The necessity of if possible creating a discussion on the subject of professional fees was first brought to my notice by an article which appeared in the 'British Journal of Dental Science' on the 15th February last, by Eimer R. Showler, Esq., entitled "*Amalgam versus Gold.*" In this the writer complains that though a great advocate for gold fillings, yet owing to the somewhat humble financial position of the patients in that part of England in which he was then practising, he was frequently compelled to extract a tooth which

* Read at the meeting of the Western Counties Dental Association at Bristol on July 30th, 1881.

might have been saved, simply because the patient could not afford to pay for a filling, and that he was obliged, if he filled a tooth with gold at all, to do the same for half a guinea, which we all know (unless it should be a very small cavity) does not sufficiently remunerate the operator for the time and skill expended on it. I think that were our patients properly educated by us to thoroughly understand the vital importance it is to them to retain their own teeth whenever possible rather than revert to the old system of extractions, which must sooner or later be succeeded by artificial teeth, or dyspepsia with its long train of evils will inevitably follow, they would at a great sacrifice to themselves cheerfully act as we advise, knowing that by so doing they are endeavouring to retain health, the very greatest of blessings and without which there is no enjoyment in life. With imperfect mastication health cannot long be retained. I have thought by choosing this subject I might at least advance a few ideas, which though they might not be new or original, would certainly tend to provoke a discussion which must be useful to us all, and in time might lead towards establishing a uniformity of fees amongst our Dental fraternity. My standpoint would be a uniformly minimum fee, not a maximum; for we are all fully aware that there will ever be in our profession, as in all other professions, men who must necessarily take the lead and so entitle themselves to whatever fee they may deem it expedient from time to time to charge. Again, some patients cause us more trouble than others, though the amount of work needed may be the same; therefore, in such a case we ought to be remunerated with a larger fee as by such extra trouble and annoyance we are robbed not only of our time but also of our vitality. And though money will not compensate us for the loss of the latter it will certainly afford us the means for recreation, and so allow us to recuperate our wasted energies.

It is very disheartening, and doubtless it has occurred to many of you here to find patients upon whom you have most carefully and conscientiously attended, and for whom you have done good work, exclaiming when told the fee for the operation, "Oh! I can get that done by Mr. or Dr. So-and-so for half that fee." Such annoyances as these would not often happen were some rule adopted, whereby a specified fee for a special work were charged, say, for instance, a minimum fee of half a guinea for consultations, extractions, plastic fillings, &c., gold fillings for one guinea and upwards. I say upwards because we know well that contours, approximals, compound cavities, large central fillings, &c., cannot be done for that sum to be remunerative, and therefore

should be charged as special operations. If there were some such uniformity of fees amongst us, and if each Dentist were thus honest and dealt justly by his patient and himself, he would be enabled to do good and lasting work which would prove decidedly advantageous to the patient, add to his public reputation, and ensure him the esteem of his professional brethren generally. As regards materials used for fillings I can scarcely touch upon that now as each operator has his own peculiar views and fancies on the point, but I do not think the patient has any right to interfere with the means employed for the preservation of the tooth so long as it is carefully, skilfully, and successfully performed. Gold when used to fill a large cavity represents value, but it should not be employed as a motive for obtaining a larger fee by mentioning to the patient the quantity of gold used for the case. Let it be plainly understood by the patient that the amount of the fee demanded is not for the gold, but for the time and skill expended on the case. I decidedly think all patients seeking our advice with regard to treatment of the teeth or diseases of the oral cavity should pay a fee whether the treatment be curative or palliative.

I know that some of my professional brethren advocate time as a good standpoint for calculating fees. Now, to my mind one may take time as a basis to form one's own ideas as to what one may demand for certain operations. My experience is that patients are decidedly better satisfied if before commencing a long operation some idea is given them with regard to what the fee will be (I am here of course alluding to radical work such as restoring the crown of a molar, one wall only standing, with gold, which would take at least from five to six hours to accomplish, but it is only in this or similar cases that I should deem it necessary to give this explanation). Still, time as a rule is unjust to both patient and operator, for one operator will accomplish as much in one hour as another would in two, though they are both equally good operators and the work is precisely similar; another objection to time as a basis is that one does not always feel equally inclined for work and therefore then would not work so rapidly.

WE record with much regret the sudden death of Mr. Edward C. Waller, of Alexandria, Egypt, who died of congestion of the brain on the 27th ult. Mr. Waller, who was in the prime of life, had practised successfully in Alexandria for many years, and his loss will be deplored by many friends both in England and Egypt.

THE PHYSIOLOGY AND PATHOLOGY OF DENTAL CARIES.*

By CHARLES A. HAYMAN, L.D.S.R.C.S. Eng., Bristol.

(Concluded from page 718.)

Transparent zone.—As caries advances, it spreads laterally as well as towards the pulp, always running in the direction of the dentinal tubes. In moderately slow decay the whole mass resembles a cone in shape, the base corresponding with the point where the decay commenced, and the apex pointing towards the pulp; but beyond the cone is a contour line, enclosing the zone of transparency, which Mr. Tomes considers to be due to consolidation and shrinkage of the dentinal fibrils, so allowing the air to enter the tubes. By making a section from a tooth in which decay has been slow, we see that the fibrils have been broken into short lengths, and some may be seen standing out from the ends of the tubes, while others, divided into short lengths, cover the surface of the section, and others lie within the tubes. It is difficult to understand how transparency could result from the presence of air in the tubes, contrary to all one observes in bone and dentine, where the presence of balsam makes the tissue transparent; but if examined before immersion in fluid, the lacunæ, canaliculi, and dentinal tubes have a black appearance; due to the presence of air; this entirely disappears when the tissue is permeated by fluid.

The existence of a zone of transparency is regarded by some as an effort of nature to place a barrier against the approach of decay. Mr. Salter states that the zone is due to a secondary deposition within the tubes of newly calcified matter, which forms a protective barrier tending to limit the disease, and this is used as an argument in favour of the vital action theory; but as the same appearance is met with in natural teeth used for artificial purposes we shall readily see that this argument is inadmissible.

Dr. Magitot believes that the dentinal tubes do become obliterated by calcification. Professor Wedl attributes the increased transparency to the exclusion of air from the tubes. Leber and Rottenstein deny that the fibrils calcify, and attribute the transparency to the abstraction of a portion of

* Read at the meeting of the Western Counties Dental Association at Bristol July 30th, 1881.

the calcareous salts which have been deposited in the canals, and are formed by a purely chemical process, that is, by the residue resulting from the solution of the calcareous salts by contact with acids. I think we shall be convinced that the dentine forming the zone of transparency has been altered from its normal state, and is in the preparatory stage of decay, as it is of a brownish colour, of less consistency, and transparent.

It is interesting to notice that in the first stages of decay the appearance of the enamel is very different from that of the dentine. The former when sound is translucent, but when carious becomes opaque and chalky; the latter when well formed is opaque, but under the influence of caries becomes translucent.

Secondary dentine.—The formation of secondary dentine is used as an argument in favour of “vital action,” but in answer to this I would suggest that a repetition of Professor Harding’s experiment is going on. Professor Harding found that calcareous salts slowly precipitated in albumen resulted in the formation of onion-shaped bodies called calcospherites, so that, taking for granted that the zone of transparency is due to the presence of lime salts in the dentinal tubes, “why should not a process of calcification take place at the edge of the pulp similar to what occurs in the experiment just mentioned?”

Causes of decay.—The causes of decay may be classed as predisposing and exciting. The faulty development of enamel is one of the most general predispositions to caries. Mr. Tomes describes various defects. He says it presents a brown colour, showing itself in the teeth marked with congenital fissures and indentations, giving the honeycombed appearance, or teeth may have notched or serrated edges. The surface of a tooth may be covered by cracks. This can be proved by placing it in a warm liquid, at about the heat food is taken in the mouth, and then immediately immersing it in iced water; the sudden change of temperature has the effect of showing these defects most plainly. Mr. Tomes mentions another kind of defect, namely, congenital white patches or spots so often met with in the enamel; these denote that although the fibrillary structure of this tissue has been more or less preserved, yet the prisms are not strongly united together.

The *predisposition of dentine to decay* is shown in the occurrence of interglobular spaces, caused by the imperfect fusing of the calcification globules, or because through some defect the calcareous salts have been prevented from reaching certain parts of the tooth in sufficient quantities,

and M. Magitot has shown that these spaces occur in several uniform layers running parallel with the surface. In cases like the one just cited, when decay once attacks a tooth it readily yields to destructive agents, but if the enamel remains sound, although the dentine may be very faulty, yet it may escape the evil influence. This predisposition is seen in families; there is a certain hereditary tendency to caries which can often be explained by a delicacy and imperfection of texture, which sometimes affects the hair, sometimes the skin, and sometimes the teeth. That these peculiarities do exist is certain, and inasmuch as the teeth are dermal appendages, they are as liable to them as the skin and hair. Very white teeth with a bluish tint are especially liable to decay, but those of the yellow and darker shades seem stronger, and are more rarely attacked.

Exciting causes.—"What are the exciting causes of caries?" Our reply is principally an acid reaction and the growth of a parasitic fungus, which remove the earthy salts and destroy the matrix. In a state of health the saliva is a neutral fluid, and is composed of the secretions of the salivary glands and mucous membrane of the mouth; the former is alkaline and the latter acid. In health these are present in such proportions as will make a neutral fluid, but constitutional derangements will alter these proportions; for instance, in dyspepsia the saliva is scanty, and the mouth owes its moisture to the presence of mucus. In such cases the gums present a very unhealthy appearance, and mucus is seen stretching across the mouth in strings; considering the acid nature of this, it is not to be wondered at that the teeth in such cases are generally much decayed. Another cause of acidity is found in persons suffering from pyrosis (water-brash), the lactic acid constantly vomited in these cases being very hurtful to the teeth. Sugar alone does no harm, but if particles of food lodge in crevices, as meat will do, then the sugar sets up a very active fermentation, and a decomposition of the salts will soon take place. Citric and malic acids, which are found in cider, act readily on the enamel, and in cider-drinking countries caries is a very common disease. This may be accounted for in two ways: either by the direct action of the acids on the enamel, or by its too free use causing the digestive organs to be thoroughly upset, and in consequence affecting the saliva by making it acid. Some acids act only on the enamel, such as alum, oxalic acid, and acid tartrate. Leber and Rottenstein tell us that when a tooth was placed in a solution of alum (1 in 100), after six days the polish was

diminished and the enamel covered by a light earthy layer, which was easily removed, but the root remained intact. After twenty days it could be easily removed by the nail, and the root could be more easily cut than in the normal state. The *Leptothrix buccalis* plays a very important part in the destruction of a tooth, but its presence is never detected until the acids have made a hollow, in which it may lodge. Caries may be brought about by artificial means, and natural teeth or ivory blocks used as artificial substitutes are liable to be affected in a similar way.

Now, to sum up the foregoing remarks, let me mention a few points in favour of the chemico-parasitic theory.

First.—Caries always commences at the outside of a tooth, either in a chink or fissure, or on a plane surface, such as the cusp of a tooth, and although the enamel sometimes breaks in suddenly, and shows a cavity of considerable size, the existence of which the patient has been entirely ignorant of, yet there has been some external communication through a small hole at the bottom of a crevice or some faulty part of the enamel, through which the acids and fungi have been admitted, and gone on with their work of destruction unobserved.

Secondly.—Caries is independent of any inflammatory process in the pulp; the dental tubes are affected first at their periphery; the nearer we get to the pulp the more normal the dentine. Again, if the pulp had anything to do with the production of caries, "how is it that dead teeth are attacked?" For it is a well-known fact that old stumps, which have no pulp left, decay as fast as perfect teeth when first affected.

Thirdly.—Caries can often be accounted for by the neglect of cleanliness. The buccal cavity is one of the most favourite sites for the accumulation of mucus, and if particles of food are allowed to remain in the fissures and interstices of the teeth fermentation will be at once set up, and with the help of the acid mucus bring about decay.

Fourthly.—In examining with high powers a section of carious tooth isolated tubes are seen enlarged, and are surrounded by healthy tissue, and have the same appearance as those in the midst of the decayed portion; their dilatation is due to the presence of *Leptothrix*, and the periphery is most affected; now the disease could not come from the pulp, or the tubes would have been dilated throughout their whole length, and that this is not the case can be proved by taking a deeper section, when we shall come to sound dentine.

Fifthly.—If the decay and all the parasitic germs are removed, and the cavity disinfected so that all septic matter

is taken away and a firm stopping introduced, so as to prevent any external communication whatever, we do not find the tooth is again attacked at the same point. On the other hand, if decay were due to vital action we should expect it to advance as fast after local treatment as before. Even if a tooth has been imperfectly excavated, yet has a firm stopping capable of keeping out acids, &c., decay does not advance; this shows plainly that the causes are external, not internal.

Sixthly.—Teeth of implantation and ivory blocks used on artificial dentures are subject to caries, and are as readily attacked as natural teeth; and the tubes have the same appearance as those of decayed teeth generally, the change commencing at the points of juncture of the blocks with the plate, or where wires enter the ivory for the purpose of holding it in place.

In conclusion, let me say that caries is the separation of the constituents of a tooth, by which the earthy is removed from the organic; and is brought about first, by an acid reaction which softens the tissue; then the *Leptothrix* insinuates itself and grows, until the tooth substance is broken down; but decay always commences in the enamel and proceeds through the dentine towards the pulp.

MELANOTIC GROWTH ON UPPER LIP.

At the last meeting of the Cambridge Medical Society Dr. Humphry showed a small melanotic growth, which he had removed from the upper lip of a man aged sixty-two, who looked the picture of health. It was a small, black, tuberculated spot in the mucous membrane of the upper lip, slightly raised, firm, and bleeding easily. He had not seen anything of the kind before in or about the mouth. It was an instance of a malady, the most malignant of all maladies, fixing itself upon a perfectly healthy man, in one isolated spot, where it might remain quiescent for a number of years. The melanotic speck then spread a little, and was cut out; then the lymphatic glands enlarged, and melanotic growths appeared in all parts of the body—in the viscera, in the membranes of the spinal cord, and elsewhere. He had in this case removed the growth quite freely; still he could not but fear that it might return somewhere.—*Lancet*.

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LONDON, AUGUST 15, 1881.

THE CONGRESS.

THE International Medical Congress has fulfilled to the letter every anticipation that we expressed in our last issue. As an imposing pageant it has been a supreme success. Everything that the imperial imagination, and the equally imperial expenditure of the Secretary General could do to render it a magnificent gathering has been done. The historic splendour of the city, and the artistic profusion of the West End, have been [alike invoked to overawe and delight our guests ; while science—shunning alike the din of commerce and the dilettanteism of art, but holding on to the skirts of law—has extended to them a more select if more modest hospitality at the Royal College of Surgeons. Everywhere, too, there has been private profusion and entertainment, and our visitors will doubtless one and all return with new ideas and pleasant memories of the wealth, the liberality, and the friendliness of our people. Nor will our own memories of the monster Congress be less pleasant. We have been able to realise for a week the magnificent dreams of childhood, to filch for a few days from the past its youthful love of spectacle and profusion, and to forget for the nonce the realism and materialism of this grizzled century. The memory of it all will be pleasant, though even in the full enjoyment of it there was a pervading sense of unreality. We shall remember it with pleasure, but we shall never repeat it. A show like that of the past fortnight exhausts the enthusiasm of a generation.

Turning from the ornamental to the practical side of the Congress—from its embellishments to its final cause—we meet with all the disappointment we predicted.

Doubtless, in some sections good work has been done; a few subjects which admit of public discussion have been threshed out, whilst in others the ground has been cleared for future research. But the actual gains to science have been small. Its camp followers may have gathered a rich harvest, but what of its fighting men? Judging from the work of the Dental section, exact knowledge has received little tangible addition from the meetings of the week. The two things, as we have said before, are incompatible. It is a mockery to discuss a series of minute researches like those, for instance, of Mr. Arthur Underwood and Mr. W. J. Milles in a crowded meeting, where perhaps, not more than three or four have the preliminary knowledge which would entitle them to form any judgment on the subject at all. Specimens like those admirable ones exhibited by Mr. Underwood can only be done justice to in the quiet of one's study, and his exposition of the subject was such as deserves the earnest attention of the unjaded intellect, not the hurried thought of men be-dined and be-soiréed to the point of exhaustion. An eloquent paper like that delivered with such success by Dr. Norman Kingsley is more suited to the peculiar condition of the Congress mind; but, unfortunately, that is not science. The simple truth of the matter lies on the surface. Where there are facts, statistics, specimens, such as are an indispensable foundation for any scientific argument worthy of the name, the hurry for a Congress does not allow time for their adequate examination; on the other hand, where there are no facts, or only pretended facts, one's time would be better spent elsewhere.

At the same time we gladly concede that the meetings of the Dental section have been extremely valuable as an educating medium. We have learnt not only new facts but new methods of discovering facts. Dr. Arkövy's experiments on the devitalization of the pulp, for instance, open up a new vista of scientific inquiry, and though it is a vista which is unfortunately boarded up in this country, still his example may well provide in the words of the President "a stimulus for intellectual effort" in other directions. It is lines of severe research, such as those chosen by Mr. Arthur Under-

wood and Dr. Arkövy, that we wish to see followed up by our younger investigators ; not pseudo-scientific triflings like those of Dr. Kingsley. And if the meetings of the Dental section shall prove to have encouraged inquiry in the one direction and warned it away from the other, we do not think its members will have cause to repent of the hours of heat and oxygen starvation, that they spent in the stifling rooms of the Linnæan Society.

THE Medical Council cries "Check." The Dental Association after a little preliminary play with the "rooks," had boldly pushed forward its knight, Sir John Holker, guarded by a pawn on each side. The object was to draw out the Council's Queen, and the move was a clever one. The Council, however, is not to be tempted, and by a rapid counter-move has put the Association in check, and compelled it to try a new combination.

ALL this means that the Medical Council, or rather its Executive Committee, has repulsed a bold attack on its purse and its reputation. The British Dental Association, always a sanguine body, was weak enough to hope that the Medical Council would bear all the expenses of the expurgation of the Dentists' Register ; but Sir John Holker was weaker still, and actually expressed the belief that the Council would be willing to take the initiative, and would itself expunge a name, with the object of obtaining a judicial decision on the subject. The Committee thus asked to surrender the Council's reputation for consistency and logic replies simply "*Pas si bête.*"

THE correspondence was of course carried on with all the usual amenities. The Secretary of the British Dental Association sends to the Executive Committee the opinion of

Sir J. Holker and two others which we quoted last week, and the important part of which—the sting in the tail—we shall perhaps be excused for re quoting. “We think,” says Sir John Holker, “that *practically the only means* (the italics are our own) of obtaining a judicial decision will be for the Council to expunge from the Register the name of some person, who, according to the view which we have taken, was not entitled to be registered. The question can then be tried on a mandamus to restore the name. *The Council would no doubt be prepared to give every facility for this purpose*” (the italics our own again). On this the Executive Committee of the General Medical Council, sitting on the 28th ult., resolves that “In the opinion of the Committee, the steps requisite to be taken to try the correctness of the course taken by the General Council under the advice laid before it rests (*sic*) with the Dental Association, and not, as suggested in the opinion now forwarded, by the removal of a name which in the judgment of the Council is registered in conformity with law.” Not a very elegant or grammatical resolution, but doubtless quite intelligible. The decision, of course, is not absolutely final, and the Dental Association is now living in the hope that the Council will reverse it.

WE received the opinion of Sir John Holker too late to be able to comment on it in our last issue, and now it has passed, to all intents and purposes, beyond the reach of comment. We may, however, be allowed perhaps to point out that counsel at once seized on and attempted to defend the weak point in the case of the Association to which we had already called attention. Why is a Dentist who sells perfumes to be excluded from the Register on the ground of not practising Dentistry separately, when a Dentist who sells literary articles or is a director of a manufacturing company is allowed to remain? Let our readers look back at our last number and see if the way in which Sir John Holker meets this difficulty, satisfies the demands of their logical faculty. If it does, all we can say is—“poor logical faculty.”

THE cry is "still they come." The last few weeks have seen new Dental journals published in England, in France, and in America; and now we receive a new Dental journal from Germany. It is entitled the 'Vierteljahrsschrift des Vereins Deutscher Zahnkünstler,' which being translated, is the 'Quarterly Journal of the Association of German Artists in Teeth' or 'Dental Mechanics.' After this it is hardly necessary to say that it does not pretend to represent the higher ranks of German Dentistry.

THE Congress week was a week of lavish hospitality, and every evidence was given of the high state of material comfort and luxury in which the upper strata of both the Medical and Dental professions live. The horrible thought has been suggested that some of our guests, envying us our grapes of Eshcol, will come back reinforced, like their forefathers Hengist and Horsa, to settle themselves amongst our pleasant places, and to share our spoils. But surely a merciful Providence will not allow us to be invaded from the east as well as from the west.

THERE is one thing our guests will report to their home-keeping friends with wonder and amazement. In the midst of a grand Congress, which was inaugurated by Royalty, was entertained by the "Lord Mayor," and terminated in a salvo of Crystal Palace fireworks, an insignificant vestry was actually allowed to take up the road in front of Burlington House, and obstruct all carriage access to some of the principle sections. For the Dental Section the action of the vestry in question would have been an unmixed benefit, but for the smell of gas which replaced the noise of the traffic when the road was broken up. Owing to one cause or the other, the windows of the section room were necessarily kept tightly closed during the whole of the Congress, and the state of the atmosphere would at times have startled even the President of the Western Counties Dental Association.

WE should like to have seen Section 12 better represented in the Temporary Museum. Only five specimens were at all immediately connected with Dentistry, four of which were exhibited for the Odontological Society by Mr. C. S. Tomes, while the fifth was from the rich Museum of St. Bartholomew's Hospital. We cannot but think that if greater interest had been manifested in the Museum by the profession at large a more respectable series might have been collected.

THE large social gatherings of the Congress week were all of them highly successful. For the Dental profession, Mr. Rogers' *soirée* and Mr. and Mrs. Edwin Saunders' garden party were the chief events. Both were most pleasant reunions, the singing of Mr. Arthur Underwood's quartette at the one, and the playing of the Hungarian band at the other, greatly contributing to the enjoyment of the guests. The larger entertainments were more distracting, and consequently less diverting. It was difficult to find one's friends, though the electric light was plentifully used at all of the large *conversaziones*. At South Kensington one large court was lighted with gas, the other with electricity; the former was crowded, the latter deserted. So little love have even scientific ladies for the dry light of science.

THE following extract is from a circular which is being sent out from the advertisement department of the Journal of the British Dental Association. The italics are as in the original.

"Dear Sir,—I beg to submit to your notice 'The Monthly Review of Dental Surgery,' which is now constituted *the Official Organ of the British Dental Association*. This Association numbers amongst its members *all the leading Dentists throughout the world*, and the additional influence thus given to the large circulation of the Review, merits the particular attention of Advertisers, &c. &c."

The conductor of the advertisement department of the 'Monthly Review of Dental Surgery' evidently possesses the most jejune of imaginations.

Let us suggest to him something like this :

“The Monthly Review of Dental Surgery’ has the largest circulation of any similar serial in this or any other universe. It is translated into every known tongue and widely distributed amongst nations of every age and clime. An edition on papyrus is expressly printed for the dentist priests of Ancient Egypt. Extracts from each number, especially from the advertising columns, are stamped on baked brick in cuneiform characters for the Imperial Library of Nineveh. The Journal is widely circulated in the interior of Africa, the rising city of Ujiji alone taking a thousand copies; and it is also sent to the dépôts recently established in Smith’s Sound, at the Mouth of the Obi, &c., &c.”

That is the sort of coloured fly to catch the Dental trout with.

As a matter of fact, the foreign members of the British Dental Association can be counted as one’s two hands. Its promoters have never laid any claim to a cosmopolitan character, and in spite of international congresses the term “British” still has a meaning of which any body of men may be proud.

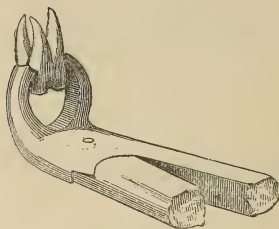
The Dental Examiner.

FORCEPS—(continued).

OUR last article has contributed to elicit the very information we most desire to propagate, so that we may assist in the rightful distribution of honours to those to whom honour is due. In another part of this number will be found a letter from Mr. T. W. W. Fay, claiming for a member of his family the credit of having, in the year 1826, suggested “the principle of adapting the beaks of the forceps to the teeth upon anatomical grounds.” The subject is one of so much interest that we shall make no excuse for thoroughly investigating his claim.

In the ‘Transactions of the Society for the Encouragement of Arts and Science’ for the year 1826, it will be seen that

three medals were given away in that year, and the large silver one was awarded to Mr. Cyrus Fay, of No. 7, Sackville Street, for improvements in the construction of Dental instruments, and a set of forceps made after *his designs* were placed in the society's museum. Mr. Fay writes in these 'Transactions': "I was soon convinced that the neck of the tooth was the only part on which the necessary force could be applied with safety and advantage. I have invented a set of instruments anatomically suited to these several classes of teeth, and such a set of instruments have *never before* been accomplished." He goes on to describe their number, "six, and three of them are to be made in two sizes, so that the complete set consists of nine forceps." The two accompanying woodcuts are taken from Mr. Fay's illustrations in the 'Transactions of the Society of Arts' for 1826.



He claims for these instruments:—1. Accuracy of fit. 2. That they never slip. 3. That they do not cut the gum. 4. That their beaks are so arranged that they can be got beneath the gum. Mr. Fay also introduced the original hawkbill forceps, and in testimony of the excellence of these arrangements letters of approval are appended from several medical men of eminence, and amongst others one from Joseph Henry Green, afterwards president of the Royal College of Surgeons. Mr. Fay also introduced a number of excising forceps for the purpose, as he proposes, of cutting off the crowns of teeth with their pulp chambers so that the fangs might remain in. Now it does appear very remarkable that after such explicit explanations, and remembering that with these 'Transactions' two pages of woodcuts appeared, Mr. Fay's claims should not have been noticed

All the early books on Dental Surgery entirely ignore the existence of any such instruments. In 1843 Mr. J. Chitty Clenden published a book on 'Improvements in the Make of Forceps, and the Dangers that may result from the use of the Key.' In this work he gives credit to Mr. James Snell for having introduced these very improvements, and in a second edition, published in 1844, he states that he has received many letters of commendation, but a charge of plagiarism has been also brought against him by ONE, and he here acknowledges that he has not put these forceps forward as his own invention, and again mentions the name of Snell as the originator in 1831. If we now turn to Mr. Snell's book, called 'A Practical Guide to Operations on the Teeth,' we read :—"In this country, during the last century, the use of the forceps in extracting the back teeth appears to have been in a great measure discontinued in favour of the key instrument until the former method was brought again into notice by Mr. Cartwright. The celebrity which he has so deservedly obtained as an extractor of teeth with the forceps may be considered as the joint result of *his modification of the instrument*, his skill in using it, and the novelty of applying it to the removal of the molar teeth." But not a word is mentioned about Mr. Fay's paper before the Society of Arts. It is greatly to be feared that this gentleman's claims to what is now known as a modern forceps have been wilfully neglected. It is difficult to believe that men who were in practice a few doors from each other should not be acquainted with the published opinions of their neighbours. That Mr. Fay deposited at the Society of Arts in 1826 a set of forceps is acknowledged, and the two woodcuts we have engraved will show their construction and settle a matter that somehow has been neglected by all those authors who have written on the subject, American as well as English. To Mr. Snell is due the credit of having first suggested that "one handle should be left longer than the other and turned round in a hook, which will pass over the operator's little finger, and will be found to assist in retaining the instrument firmly in the hand." The curve in the opposite direction, as illustrated in our last number, is a later idea, intended for

short stump forceps to prevent the handles hurting the hand when much force is needed in getting at a deep-seated stump.

MR. FLETCHER'S NEW GUTTA-PERCHA FILLING.

VARIOUS preparations of gutta percha have been suggested for stopping purposes, but those manufactured by Mr. Hill and Mr. Jacobs have been more generally used by the profession. Although most practitioners only regard these as temporary fillings, yet, if properly inserted, they are very durable. The present preparation is an improvement on what has gone before. When heated it is soft, velvety, and not, like Hill's, sticky. It will bear finishing off, and presents when completed a delicate surface of considerable hardness. Its durability can hardly be determined at once, but judging from its toughness and evident purity it should at least equal the best preparations at present in the market.

We shall have something more to say of this preparation in our next issue.

[NOTE.—Dental materials or appliances intended for notice in the "Dental Examiner," should be sent to the Editor at 11, New Burlington Street, W.]

Dental News.

ON PASSING EVENTS.

By "PHOSPHOR."

MR. THOS. A. ROGERS' CONVERSAZIONE AND MR. SAUNDERS' GARDEN PARTY.

IT is a question whether the Dental profession has ever been so universally represented as in the *Conversazione* of the Odontological Society of Great Britain organised by the President on the 2nd August, and the Garden party given by Mr. and Mrs. Edwin Saunders on the 6th. Not only were most of the members of the Society, country as well as town, present, but the honorary and corresponding members now attending the Congress also availed themselves of the opportunity of

showing their respect for two of the most capable and certainly the most courteous of our body. Mr. Thomas Arnold Rogers may congratulate himself upon the success that attended his gathering. Not only was hospitality extended with a liberal hand, but opportunity was given for friendly conversation with those whose visits must necessarily be more restricted as each year brings age and infirmities upon most of us. Nor were the President's visitors limited to the members of his own profession; a considerable number of our medical *confrères* united to us by common interests made the evening more thoroughly representative, and to the soothing strains of the Coldstream Guards' stringed band or between the glees of the Dental Hospital Choir, friends were reunited and past reminiscences recalled. I have so frequently alluded to the advantages resulting from such meetings that I need not, at least in these notes, say more than bear my testimony to the success of two of the most agreeable gatherings this busy and festive season has given to us. In the charming grounds of Mr. Saunders' seat, Fairlawn, three hours of uninterrupted conversation under a bright blue sky helped to renew those friendships which Mr. Rogers' evening, in many instances so agreeable, brought about. The calls upon your space will not allow me to say more at present, but those whom distance and pressing engagements prevented from appearing will be glad to know that nothing could exceed the urbanity exhibited on all sides, and that the hospitality extended, more particularly to our foreign guests, was a fruitful source of comment and congratulation to all concerned.

BRITISH DENTAL ASSOCIATION.

THE annual general meeting of the British Dental Association was held on August 1st, at 40, Leicester Square, about forty members being present. On taking the chair the President, Mr. TOMES, said that the business to be got through was entirely of a routine character, the usual papers and discussions having been dispensed with on this occasion on account of the near approach of the Congress.

The Treasurer, Mr. PARKINSON, and the Secretary, Mr. J. S. TURNER, then read their respective reports, which were of a satisfactory nature, and the meeting proceeded to elect members to fill vacancies in the Representative Board. A ballot having been held the following gentlemen were declared elected members of the Representative Board,

viz:—Messrs. Edwin Saunders, A. Coleman, G. A. Ibbetson, Henry Sewill, W. B. Macleod, Ashley Gibbings, W. A. Woodhouse, S. J. Hutchinson, Alfred Hill, and David Hepburn, together with the following representatives of the Midland Branch:—Messrs. Stewart (Liverpool), Mahoney (Sheffield), and Nicol (Leeds).

Mr. TOMES said the next business was to choose a President elect. Under Bye-law 8, the Representative Board had nominated Mr. Campion, of Manchester, for this office. His election was suggested as a compliment to the first considerable branch which had been formed in connection with the Association, and for the same reason the Board would suggest that the Annual Meeting should be held next year in Liverpool.

Mr. CAMPION was at once unanimously elected by show of hands, and after a short discussion the recommendation of the Board to hold the next gathering at Liverpool was agreed to. It was further resolved that the date for holding the meeting should be between August 18th and August 30th.

Mr. T. C. PARSON said he had great pleasure in stating that at the Annual General Meeting of the Western Counties Dental Association, which had been held at Bristol on July 30th, the resolution proposed by Mr. Spence Bate that that Association should be affiliated to the British Dental Association as its Western Branch, had been unanimously agreed to.

Mr. UNDERWOOD then rose to call attention to the heavy affliction which had befallen one of their members, Mr. David Hepburn. He had known Mr. David Hepburn for forty years, and should have been glad to have enlarged upon the traits of character which had endeared him to a large circle of friends. But Mr. Hepburn was so widely known, and so universally beloved, that he felt this was unnecessary. He would, therefore, at once propose the following resolution: "That the meeting tenders its sympathy." The resolution was seconded by Mr. Walter Campion and carried unanimously.

The PRESIDENT then proceeded to deliver his address, and said he should confine his remarks to questions which had arisen since their meeting in August last. All would remember that they had good reason to believe that many persons destitute of legal claim obtained a place in the Dentists' Register, and on the strength of counsel's opinion the names of such persons were brought before the Medical Council with a view to their removal. The Council had obtained an opinion from Mr. Charles (now Mr. Justice) Bowen, and it had not been denied that this opinion agreed

on all material points with the one (Mr. G. A. R. Fitzgerald's) upon which the Association acted. These two opinions, together with the cases of alleged incorrect or fraudulent registration, were referred to the Dental Committee, the business of which consisted in finding the facts of the submitted cases. In February last the Council was called together for the transaction of Dental business. A few hours before the meeting the report of the Dental Committee was issued, and to their utter amazement no word was said about the two referred opinions, but a third, Sir Farrer Herschell's, was produced, wholly traversing them. Resolutions were proposed by members of the Committee which involved the acceptance of Sir Farrer Herschell's opinion without giving any reason or adducing any argument in favour of its selection, as being superior to those from which it so greatly differed, and the resolutions were accepted, not, however, without complaints and expostulation. The resolutions passed by the Council were to the effect that sufficient evidence had not been produced to justify the removal of the proposed names from the Register, and they (the Association) were advised that if a carefully drawn case were submitted to a combination of high legal authorities, their decision would strengthen one side or the other to such an extent as to render the interpretation near to a certainty, and as near as any procedure short of bringing a test case before the High Court of Judicature could make it. In conformity with, and under legal advice, a case had been very carefully drawn, and with all the published opinions has been submitted to Sir John Holker, the Attorney-General of the last Government, Mr. R. S. Wright, and Mr. G. A. R. Fitzgerald, the draftsman of the Act. The following opinion was the result of a full and exhaustive consideration of the case. (Mr. Tomes then read the opinion, which appeared at p. 741 of the last issue.) The case and opinion had been submitted to the Medical Council with a strong appeal for a reconsideration of the cases reported upon by the Dental Committee, and with an expression of hope that Mr. Bowen's opinion might be published. They had now placed the Council in possession of additional legal evidence which, with that previously held, might be thought sufficiently conclusive to justify the erasure of the reported names, or at all events to call for such action as would lead to a judicial decision, a proceeding which, he was told, if taken on a mandamus for restoration to the Register, would not be attended with great expense. Should it be deemed necessary to carry a test case to a high law court for the determination of the law, the Council might reasonably be expected to

furnish the means from the Dental funds. But if law proceedings were necessary the subscription list already published showed that the members of the Association would not allow the case to go by default for the want of available funds to bring it to a trial. In conclusion, the PRESIDENT said:—"I have as yet spoken only of our troubles, let me now for a moment revert to our successes and our pleasures. Since we last met our speciality has met with very full and gratifying recognition as a branch of surgery at the hands of the medical profession. Dental Surgery for the first time is represented by a section in the International Congress. A member of our Board, Mr. Saunders, is the President of the Metropolitan Branch of the British Medical Association. Surgical qualifications are entered in the 'Dentists' Register,' not as qualifying but as additional qualifications; and the last, but certainly not the least cause for hearty congratulation, is the entry during the present year in the 'Students' Register' of about 100 names; and be it remembered that persons cannot register the commencement of professional studies until they have passed the preliminary examination in general knowledge. One hundred qualified practitioners added to our ranks each year would suffice to keep up a body of nearly 4000 Dental Surgeons. To those who sometimes read the law reports in newspapers the difficulties we have encountered in our efforts to obtain a revision of the 'Dentists' Register' will not seem surprising. But in this, as in other matters of business, success, if rightful, will follow the exercise of patience, perseverance, and forbearance—not, however, if the latter word is interpreted as meaning indifference. We ask only, and we are justified in asking, for a register correct in the eyes of the law, which is neither disfigured by laxity or by severity of administration."

Mr. FINLAYSON then proposed "That this meeting approves the course taken by the Representative Board for the purpose of obtaining a correction of the 'Dentists' Register.' The motion was seconded by Mr. BALDING, and carried unanimously.

The PRESIDENT said it was a great satisfaction to those engaged in these somewhat anxious duties, thus to receive the expressed approval of the members generally.

Mr. W. B. MACLEOD then moved "That this meeting pledges itself to use its best endeavours to collect a fund sufficient to enable the Representative Board to obtain a judicial decision respecting the cases of alleged incorrect Dental registration." Mr. BROWNE MASON, in seconding the resolution, said that at the meeting of the Western

Branch, subscriptions to the amount of £80 were added to the Legal Expenses Guarantee Fund, in addition to £10 voted from the balance in his hands as Treasurer. Mr. TURNER said he should like to remind those present, before the resolution was put, that if they voted for it they would be bound to add their names to the list of subscribers to the Legal Expenses Guarantee Fund. The resolution was then carried, and after a vote of thanks to the President, carried amidst great applause, the meeting adjourned.

WESTERN COUNTIES DENTAL ASSOCIATION.

THE third annual meeting of this Association was held at Bristol on the 30th inst., and was largely attended. Amongst those present were the President for the year, Mr. Thomas Cooke Parson, M.R.C.S., L.D.S.E.; the retiring President, Mr. G. T. Parkinson, L.D.S.E.; the Vice-President, Mr. C. Spence Bate, F.R.S., L.D.S.E.; the Hon. Secretary, Mr. W. V. Moore, Plymouth; and the Local Secretary, Mr. A. Smith; the Treasurer, Mr. J. T. Browne-Mason, Exeter; the following Members of the Council:—Messrs. D. Watson, Torquay; W. Helyar, Bristol; W. A. Hunt, Yeovil; Chas. A. Hayman, Bristol; H. B. Mason, Exeter; Francis H. Balkwill, Plymouth; C. Gaine, Bath; and Robt. P. Morrison, Barnstaple; and Messrs. Alfred G. Hayman, Bristol; John G. Hayman, Bristol; H. Poste, R. Rogers, Cheltenham; H. P. Fernald, R. Harrison, W. M. Parson, Bristol; J. Faulkner, A. B. Verrier, Weymouth; J. Walker, J. Parkinson, J. Smith Turner, London; G. E. McAdam, Hereford; E. Apperley, F. J. Hatton, W. Pearce, P. Stuart Thompson, Bristol; T. V. Coker, Clifton; G. Beavis, Newport, Mon.; Lewis Robinson, Edward James Gregory, Cheltenham; H. Mallet, J. W. Marks, E. F. Brand, T. G. T. Firland, Exeter; R. P. Morrison, Barnstaple; R. B. Boulton, Cardiff; C. T. Passmore, Swansea; J. Hay, Bath; and Graham W. White, Newport, Mon.

A meeting of the Council was held at eleven o'clock and an hour later the General meeting of the Members was held in the lecture-room. Mr. G. F. Parkinson, the retiring President, occupied the chair. Mr. MOORE read the Report of the Council for the year 1881, in which it was stated that the influence of the Society was becoming strengthened, and that the members of the profession who resided within

the Counties of Gloucestershire and Hereford were desirous of adding that district to the counties already embraced within the limits of the Association, and the Council recommended that this should be agreed to. In conclusion, the Report stated that there were sixty-six members, and that there was a balance in the Treasurer's hands.

After some discussion, the Report was adopted, and the TREASURER (Mr. J. T. Browne-Mason) having presented his account, which showed a balance in hand of £17 11s. 6d., MR. SPENCE BATE moved a resolution to the effect that the Society should be a branch of the British Dental Association. MR. A. SMITH (Local Secretary) seconded the motion, and it was agreed to.

Cheltenham was selected for the place of meeting in 1882, and Mr. Richard Rogers was chosen President for that year.

It was further resolved that Gloucestershire and Herefordshire be included in the Association.

Messrs. Palmer (Cheltenham), G. C. McAdam (Hereford), and Fox (Gloucester), were chosen members of the Council in the room of Messrs. Major (Plymouth), Tuck (Truro), and Yeldard (Plymouth).

Mr. T. C. PARSON then took the chair.

MR. SPENCE BATE read a paper on the "Expurgation of the Dentists' Register," and it was resolved to contribute £10 towards the Legal Expenses Guarantee Fund.

A vote of thanks was accorded to the retiring President, and several members having been elected, an adjournment for luncheon took place, the President entertaining the Association at his residence, Atherstone House.

In the afternoon the business of the meeting was resumed by an address from the PRESIDENT, who after some preliminary remarks said that a retrospective glance at the history of Dental Surgery could not fail to impress the mind with one consideration, viz. the marvellous development of science and art in providing for the not less wonderful and rapid increase of dental diseases. They were accustomed to consider their profession as having no history, but perhaps they had to some extent made up for the lack of antiquity by the celerity of their progress. Distinct records concerning nearly all kinds of Dental operations could, however, be traced back to the middle of the eighteenth century. Considering the enormous increase of dental disease, the question naturally arose, Could any intelligent reason be assigned for its early appearance and extensive prevalence amongst all classes of the community? The concurrent progress of caries with civilisation was admitted on all hands. Civilisation was tending to a deterioration in the structure of the

human frame, and nothing led to this conclusion more surely than a consideration of the details of the processes by which the teeth were destroyed. It was a matter of every day observation that disease in tooth tissue was dependent on general conditions of health, that defects in general nutrition at those periods of life when the teeth were in process of growth gave rise to defects in teeth, and that improvement in health might be indicated by an improved nutrition of tooth structure. The cessation of caries at a certain period of life independently of local treatment and the action upon tooth structure of certain physiological states, as pregnancy, showed the dependence of the change on the general state of nutrition. Passing on to the nature of dental caries, the President insisted that the Dentist ought to give his earnest consideration to the early development of the disease he had to treat with a view to the prevention of its cause rather than the mere dealing with a fully developed lesion. Various theories had been propounded to account for the decay of tooth structure, and the different causes suggested—chemical, parasitic, mechanical, and other physical influences, such as changes in temperature, electrical variations, all no doubt had their influences.

But over and above these influences there must be the vitality of the tooth itself, and this was the point he would wish to direct emphatic attention to in his further remarks. The result of the most recent investigations as to the histology of the dental structure gave the most powerful support to the vital theory of caries, and the opinions of Drs. F. Abbott and of Bödecker were quoted in this connection. An important fact showing the effect of vital influence on caries was observed almost daily in families who grew up under their observation. Teeth which had been decaying rapidly up to the age of twenty-one, after that age had frequently a complete immunity from caries, which then took on the more chronic form. In some months when the ravages of decay at one time threatened to destroy the whole denture, local treatment being totally inadequate to arrest the disease, a change took place, and the caries was arrested, only, however, to commence again at a future time when the health gave way. As evidence of the constitutional origin of caries, the frequency of rickets and syphilis as predisposing factors might be mentioned. In adult life the tendency to caries during pregnancy illustrated the dependence of the process on mal-nutrition. The effect of chronic dyspepsia and of prolonged anæmia on dental structure were further illustrations of general defects in the physiological nutrition of tissue. The treatment of caries divided

itself into two classes—local and constitutional. The local treatment was directed to counterbalance the chemical and parasitic actions. To this end the removal of the caries and filling up all the cavities was the first and most important consideration. In the selection of a filling material the character of the teeth themselves must first be considered. Regularity in the position should be secured, if possible; self-cleansing surfaces cut and polished were invaluable in the treatment of the upper front teeth. He must also lay great stress upon the preparation of cavities, keeping in view the vitality of the tooth, and so forming them that the tubes were not cut across or the enamel left deprived of dentine, so that nourishment might still be supplied from the pulp. The constitutional treatment of dental caries might be considered beyond the range of the Dental practitioner, and was usually also outside the cognisance of the medical practitioner. But certain as it was that dietetic and other defects of nutrition were potent causes of much of the dental caries which came under their observation, it was equally true that much of this might be remedied or prevented by a judicious course of constitutional treatment at certain periods. The influence of diet in the production of rickets had been pointed out by Dr. Baxter in the debate at the Pathological Society of London, as none of the ordinary factors supposed to conduce to the disease were found to bear any definite relationship to its occurrence, except the nature of the food. In 92 per cent. of Dr. Baxter's rickety cases farinaceous food had been given for varying periods before the age of twelve months. Was it not probable that much of the dental decay which was so prevalent in rickety subjects was brought about by similar causes? There could be no question that infants of all classes were often fed with unwholesome food, that starch too often took the place of milk, and that even the agricultural population suffered from a deficient milk supply, the milk being sent away to the large cities. Nothing but a knowledge of physiology would convince the public that milk was the typical human food, more useful than alcohol to adults, absolutely indispensable to infants, and that starch food was absolutely poisonous to infant life. The question of diet was much too large a one for him to enter into further details. He would, therefore, only allude to the theory advocated by Garretson and others, that bread was an inferior food to oatmeal. The omission to use the teeth as organs of mastication was another prolific cause of decay. The general hygienic conditions surrounding the life of the individual were of the greatest importance, and probably the modern habit of crowding together into large

cities, and the still more injurious habit of turning night into day, and thereby inhaling products of combustion and of respiration in crowded rooms, had been perhaps the principal factors in the production of the great prevalence of caries amongst civilised nations. The medicinal treatment of dental caries would comprise a review of all the means at their disposal for the improvement of debilitated states of nutrition arising from all kinds of causes, and would include the treatment of constitutional scrofula, rickets, and other diathetic conditions. The problem to solve was one which affected the system at large—how to check the progressive degeneration of the population, and its baneful effects upon the teeth. Goldsmith said—

Ill fares the land to hastening ills a prey,
When wealth accumulates and men decay.

This was the goal to which we were tending, but each of them could do a little to check the degradation of race, and it behoved them to encourage the desire which was rapidly growing for fresh air, pure water, and wholesome food, the want of which had been the chief cause of degeneration.

On the motion of Mr. PARKINSON, seconded by Mr. C. GAINE (Bath), a vote of thanks was passed to the President for his address.

Mr. C. A. HAYMAN (Bristol) read a paper on "The Physiology and Pathology of Dental Caries," which was followed by an essay by Mr. R. ROGERS (Cheltenham) on "The System of Professional Fees." Mr. A. B. VERRIER (Weymouth, read a practical paper on "Continuous Gum Work." There was a discussion on each of the papers, all of which have appeared in full in our columns.

Owing to the lateness of the hour, the papers by Mr. W. V. MOORE (Plymouth) on "Treatment of Disease in the Dentine," and the PRESIDENT on "Cohesive and Non-cohesive Gold Filling," could not be read.

The meeting then terminated.

The annual dinner was held in the evening at the Clifton-down Hotel. Mr. T. C. PARSON presided, and Mr. G. T. PARKINSON (Bath) occupied the vice-chair. Between thirty and forty gentlemen were present including Drs. E. L. Fox, Shingleton Smith, Brittan, and Pigeon, Mr. D. Davis, and Mr. R. W. Coe.

After the loyal and patriotic toasts,

Mr. C. SPENCE BATE proposed, in complimentary terms, "The President."

The PRESIDENT, in returning thanks, said one of the objects of the Western Counties Association was to create a

Other toasts having been proposed, drunk, and replied to, the company broke up, after a most successful meeting. good and generous feeling amongst the members of the Dental profession. By its establishment a platform was now open for the discussion of professional matters, and a channel was created for the interchange of new ideas, which would be of the utmost benefit to the profession. The meetings would help to form an enlightened public opinion in many ways, and they also helped to cultivate most intimate and cordial terms with the members of the medical profession.

Mr. A. SMITH (Clifton) submitted "The British Medical Association," and coupled with the toast the name of Mr. D. Davies, the President of the Bath and Bristol Branch of the Association.

Mr. D. DAVIES, on behalf of the Association he represented, tendered the right hand of fellowship to the members of the Dental Association, and said no medical man in extensive practice would for a moment deny the extreme importance to them of the Dental branch of the profession.

Dr. E. LONG FOX gave the toast of "The British Dental Association," and hoped to see the day when every member of the Dental Association would belong to the Medical Association. Mr. J. SMITH TURNER replied.

A CASE OF SALIVARY CALCULUS.

THE following case, recorded by Herr Parreidt, of Leipzig, is published in the 'Deutsche Vierteljahrsschrift für Zahnheilkunde.' A man, aged 45, had for three years had an affection on the left side of the tongue, at first consisting in a swelling which appeared and disappeared by itself from time to time. At last he sought advice at the Surgical Polyclinic, when there was found a diffuse swelling, covered by highly inflamed mucous membrane, but presenting no fluctuation. The patient complained of aching in both the upper and lower teeth on the left side, but as all of them were sound it was concluded that the pain was not dependent on the teeth, but was probably caused by the irritation of the neighbouring disease. After being some days under observation fluctuation was felt and the tumour was incised. To prevent rapid healing of the wound a drainage tube was introduced, and in the process of introduction a hard substance was felt. This was extracted and turned out to be a salivary calculus of the size of a cherry. Other smaller stones were also removed.

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

President.—Edwin Saunders, Esq.

Vice-Presidents.—John Tomes, Esq., F.R.S.; C. Spence Bate, Esq., F.R.S. (Plymouth).

Council.—C. H. Bromley, Esq. (Southampton), Henry Champion, Esq. (Manchester), S. Cartwright, Esq. (London), A. Coleman, Esq. (London), Daniel Corbett, Esq. (Dublin), William Hunt, Esq. (Yeovil), G. A. Ibbetson, Esq. (London), Francis Brodie Imlach, Esq. (Edinburgh), J. H. C. Martin, Esq. (Portsmouth), J. R. Mummery, Esq. (London), Peter Orphoot, Esq. (Edinburgh), Thos. A. Rogers, Esq. (London), John Smith, Esq. (Edinburgh), J. S. Turner, Esq. (London), Thos. Underwood, Esq. (London), Chas. Vasey, Esq. (London), Joseph Walker, Esq. (London), J. C. Woodburn, Esq. (Glasgow), A. J. Woodhouse, Esq. (London).

Secretary.—C. Tomes, Esq., F.R.S.

The following gentlemen attended the section among others:*

Ackery, J. (London).	Colignon, Dr. (Paris).
Amoore, D. W. (Hastings).	Colignon, Dr. Emil (Rouen).
Amoore, J. S. (London).	Coffin, C. R. (London).
Andrieu, Dr. (Paris).	Coffin, H. L. (London).
Arkövy, Dr. (Buda-Pesth).	Coffin, W. H. (London).
Atkinson, Dr. W. H. (New York).	Coffin, J. W.
Bacon, W. B. (Tunbridge Wells).	Cook, Dr. C. D. (Brooklyn, U.S.A.).
Balcomb, Thos. (Jersey).	Corbett, J. F. (Cork).
Balkwill, F. H. (Plymouth).	Cronin, Aug. (London).
Barrett, Ashley W. (London).	Cunningham, C. M. (Wisbeach).
Becht, Dr. E. A.	Dowling, C. H. (Dublin).
Bennett, Storer (London).	Dudley, Dr. A. M. (Salem, Mass.).
Betts, E. G. (London).	Elliott, W. St. G. (London).
Blache, Dr. (Paris).	Engelhardt, Dr. (Würzburg).
Blount, A. A. (Geneva).	Fay, T. W. W. (Liverpool).
Bogue, E. A. (New York).	Field, G. L. (Detroit).
Bonwill, W. G. A. (Philadelphia).	Forsyth, W. F. (London).
Brand, C. E. (Exeter).	Furber, W. M.
Brasseur, Dr. (Paris).	Gaddes, T. (London).
Brock, Dr. H. W. (U.S.A.).	Gaillard, Mons. (Paris).
Brown, Dr. E. Parmley (New York).	Gibbings, Ashley (London).
Browning, Daniel (London).	Goodwill, D. H. (London).
Butler, C. R. (Cleveland, U.S.A.).	Greves, E. Hyles (London).
Cartwright, Prof. S. H. (London).	Haden, W. H. Haden.
Clover, J. T. (London).	Harding, G. Hilditch (London).

* This list does not pretend to be perfect, but it is as complete a one as under the circumstances could be secured.

- Harding, W. E. (Shrewsbury).
 Hawkhurst, Dr. (Michigan).
 Hayward, J. W. (Liverpool).
 Hayward, H. (London).
 Helyar, Henry (Haverfordwest).
 Henry, M. (Folkestone).
 Hepburn, D. (London).
 Hepburn, R. (London).
 Holländer, Dr. (Halle).
 Hoole, Stephen (London).
 Hutchinson, Berks T. (Cape Town).
 Hutchinson, Jonathan (London).
 Hutchinson, S. J. (London).
 Huxley, F. E. (Birmingham).
 Iszlai, Dr. J. (Buda-Pesth).
 Jones, Dr. C. (Bridgeport, Conn.).
 Keen, Dr. W. W. (Philadelphia, U.S.A.).
 Keritz, Dr. Albert (Lancaster, U.S.A.).
 Kingsley, Dr. Norman (New York).
 Kingsley, Charles (Paris).
 Kölliker, P. A. (Zurich).
 Longhurst, H. B. (London).
 Longhurst, Sidney (London).
 Magitot, Dr. (Paris).
 Margetson, W. E. (Dewsbury).
 Martini, Prof. (Turin).
 Mason, J. Browne (Exeter).
 Matheson, L. (Manchester).
 May, Percy (London).
 McKellops, Dr. (St. Louis, U.S.A.).
 Medwin, A. G. (London).
 Milles, W. J. (London).
 Moore, T. T. (Columbia, U.S.A.).
 Moore, W. V. (Plymouth).
 Mummary, J. H. (London).
 O'Meara, F.
 Parson, T. Cooke (Clifton).
 Perry, C. T. (San Remo).
 Perry, Dr. G. S. (New York).
 Potter, F. B. (Reading).
 Price, Rees (London).
 Quinet, Dr. (Brussels).
 Redman, J. H. (Brighton).
 Roberts, J. G. (Liverpool).
 Rymer, S. L. (Croydon).
 Sanders, J. J. Huxtable. (Barnstaple).
 Shepherd, Prof. (Harvard).
 Sims, Charles (Birmingham).
 Snow, Dr. H. N. (Harvard).
 Sternfeld, Dr. (Munich).
 Stevens, Mordaunt (Paris).
 Stocken, Jas. (London).
 Stockton, F. D. (Newark, N.Y.).
 Stokes, C. H. (Monte Video).
 Taft, Dr. J. (Cincinnati, U.S.A.).
 Talbot, E. S.
 Telschow, Dr. R. (Berlin).
 Thompson, W. F. (London).
 Truman, C. (London).
 Tuck, W. R. (Truro).
 Underwood, Arthur S. (London).
 Underwood, R. R. (Lancaster, Pa., U.S.A.).
 Underwood, T. F. K. (London).
 Vice, W. Armston (Leicester).
 Visick, A. B. (London).
 Wardwell, C. F. (New York).
 Wardwell, J. F. (New York).
 Warner, Thos. (Cirencester).
 Watling, J. A. (Michigan).
 Webb, Marshall H. (New York).
 Weiss, Felix (London).
 Weiss, Willoughby (London).
 West, Dr. J. (New Orleans).
 White, R. Wentworth (Norwich).
 White, T. Charters (London).
 Williams, N. W. (Geneva).
 Willis, W. F. (London).
 Wood, W. R. (Brighton).
 Woodhouse, R. H. (London).
 Woodhouse, W. H. (London).

GENERAL SUMMARY OF PROCEEDINGS.

IN the present brief summary of the work of Section 12, it is our object to give as it were a bird's eye view of the proceedings, preliminary to the full reports which will be published as space admits in subsequent numbers of the journal.

FIRST DAY.

The section was opened at 2 p.m. on Wednesday, August 3rd, by an address from the President, which we publish in full in another column. Mr. Saunders was received with enthusiasm, and his address was attentively listened to by a

crowded audience. In the course of his remarks Mr. SAUNDERS said that congresses served a great social purpose apart from their more immediate intellectual and scientific aims. They afforded, indeed, an opportunity and a stimulus for intellectual effort, but in these days of an ever-teeming press such result was subordinate to the living interchange of thought which they facilitated. The modern congress owed its existence to an intense intellectual activity, combined with a wide eclecticism. It was more than a fortuitous assembly; it was the deliberate coming together of distinguished men and experts for a set purpose. Mr. Saunders then went on to refer to matters more especially connected with odontology, a branch of science which now for the first time had secured a distinct and prominent place in a medical congress; and concluded by a brief allusion to the services which had been rendered by Mr. J. Tomes and Mr. J. S. Turner in the passing of the Dentists Act.

Professor OWEN, F.R.S., then read a paper "On the Scientific Status of Medicine;" he commenced by saying that it should be the aim of every student of medicine to raise the healing art to the status of a science—*i.e.* to endow its followers with the power of more or less accurate prediction. He then, by way of exemplifying the passage of medicine from the stage of an art to that of a science, gave a brief description of the discovery of the *Trichina spiralis*, and of the various morbid changes which its presence excited in the human subject. In so far as this discovery had enabled us to demonstrate an efficient cause for a series of symptoms previously unexplained, it had helped to raise medicine to the dignity of a science, the pre-trichinal age exemplifying a stage in which medicine had not risen above an art. In the same way, there was a prescientific age in the history of chemistry and of astronomy, when the pursuits of alchemy and of astrology respectively held their own against those studies; and there was a strict analogy between the alchemist and astrologist, and those unrecognised practitioners who traded on the ignorance and obtained the countenance and support of peers, prime ministers, and others in high places. In like manner the amount of success obtained by uncertified Dentists was inversely proportionate to the stage which inductive medicine had reached in its progress to an established science.

A vote of thanks to Professor Owen for his paper, proposed by Dr. TAFT, of Cincinnati, and seconded by Mr. THOMAS WARNER, of Cirencester, was carried unanimously, and the Section adjourned.

SECOND DAY.

On Thursday, the 4th, the subject for discussion was "The Transplantation and Replantation of Teeth," communications being contributed by Dr. Magitôt, of Paris, and Dr. Finley Thompson, of London. In connection with this subject, cases were shown at 9.30 a.m. in the Museum Section by Mr. Macnamara, illustrating the transplantation of bone, and the reunion of bone with periosteum. Dr. MAGITÔT, who addressed the meeting in French, gave the results in one hundred cases in which the operation of replantation had been undertaken for the cure of chronic alveolar periostitis. Minute particulars of each case were contained in the tables accompanying the communication, and the result claimed was that the disease in question was curable by replantation in 92 per cent. of the cases. After the thanks of the meeting had been tendered to M. Magitôt, a paper on the same subject was read by Dr. FINLEY THOMPSON, who at the outset described and illustrated by diagrams the structure of the pericementum, the membrane on which the operation of replantation is wholly dependent for its success. He showed that the existence of protoplasmic cells in this membrane at once established a *primâ facie* case in favour of the probability of union taking place between the alveolus and a replanted tooth. These cells were indeed the principal agents alike in disease and in repair. Dr. Thompson claimed two advantages for replantation in extreme cases, one being the promptness of the relief it gave, the other that it did not require the continued services of the practitioner. The disadvantages were, first, the patient's repugnance to the operation and the constant care required on his part for the first few days after its performance; and secondly, the known danger attending extraction. Dr. Thompson then proceeded to describe his method of operating, and concluded by stating that of the eighty cases which had come under his notice, 88 per cent. were successful. The PRESIDENT having thanked Dr. Thompson for his paper on behalf of the Section, Mr. C. S. TOMES produced a tooth which had been the subject of unsuccessful replantation. Dr. TAFT, of Cincinnati, then proceeded to open the discussion. He said that apart from the cases in which valuable teeth had been removed by accident, and in which replantation was imperative, he had in his own practice confined the operation of replantation to very obstinate cases of alveolar abscess. He did not regard the periosteum as an indispensable element in the reunion of the tooth with its socket; but it was nevertheless important to injure it as

little as possible, and it was also advisable to plug the socket in such a way as to prevent coagulation during the absence of the tooth. The discussion was continued by Mr. COLEMAN, who thought that Dr. Magitôt had brought success up to a point where replanting might be regarded as a legitimate operation; by Dr. W. H. ATKINSON, of New York, who spoke in praise of individual histological research; by Mr. BALKWILL, who attributed failure from absorption of the root to the scraping off of the periosteum preparatory to replantation; and by Dr. JOSEPH ISZLAI, who expressed a doubt as to the utility of the operation in cases of alveolar periostitis, and preferred treating such cases by disinfecting the pulp cavity. This was also the view of Mr. SPENCE BATE, who said that he was decidedly against replantation where inflammatory action was present to any large extent. After a proposal of Mr. S. J. HUTCHINSON to take the opinion of the meeting on certain questions connected with the subject had been rejected the discussion was brought to a close by a few remarks from Mr. BROWNE MASON.

A paper was then read by Mr. DANIEL CORBETT, of Dublin, entitled "Interrupted Second Dentition as a Cause of Reflex Constitutional Disturbance," which being practically a plea in favour of the utility of Dentists was well received by the meeting, and provided a pleasant termination to a hard morning's work.

In the afternoon sitting, which was miserably attended, papers by Dr. Arkövy, of Buda-Pesth, Mr. Gaddes, and Mr. A. Coleman were read. Dr. ARKÖVY's communication gave the results of experiments which he had made on dogs, with the object of discovering the relative influence of different agents as devitalisers of the tooth pulp. Briefly, his conclusions were that arsenious acid and pepsine are the only available agents; that neither act except when in direct contact with the pulp; that arsenious acid is the more powerful, but at the same time by far the more dangerous agent of the two, and that in certain cases which he formulated pepsine should be used in preference. Mr. GADDES' communication was a plea for the better instruction of Army Medical Officers in Dental Surgery, and Mr. COLEMAN's was a most favorable record of the experience of the Dental Hospital of London in the use of anæsthetics.

THIRD DAY.

At the sitting on Friday, the 5th inst., the subject for discussion was "Premature Wasting of the Alveoli (Rigg's Disease) and its Amenability to Treatment."

Dr. W. H. ATKINSON opened the discussion by reading a

paper in which he contended that the disease in question was due to debility, and that a vigorous removal of the dead bone until living tissue was reached, was the true conservative treatment. Dr. WALKER exhibited microscopical specimens and diagrams illustrating on the one hand the normal processes of bone formation and bone absorption, and on the other the abnormal processes of inflammation and recedence of the gum. The starting point of the disease was shown to be a subacute inflammation in the periosteum, whence it passed to the bone; and the point of interest was to account for the great activity of this subacute process. Dr. ARKÖVY detailed inquiries he had made to elucidate the pathology of Rigg's disease, and described the forms of microzymes he had found in the course of his research. Similar remarks were contributed by Dr. ISZLAI, and Dr. J. M. RIGG then gave a brief account of his forty years' experience of the disease, which some of his New England friends had done him the honour to name after him. In the first stage only the margin of the gum was affected; but in the second stage the absorbents participated, pus was poured out, and the edge of the alveolar border began to break down. The only treatment was surgical, to remove with a firm but delicate hand all the necrosed portions. By this treatment 90 per cent. of the cases would be radically and effectively cured. Mr. WALTER COFFIN described the treatment which his father had found successful, and which consisted in the mechanical removal of the diseased tissue, and the careful application of hydrate of phenol. The result of this treatment seemed to show that the disease was due to the presence in large numbers of some fungoid forms, capable of entire destruction by antiseptics. Mr. OAKLEY COLES called attention to the share which impaired general nutrition played in the disease under discussion, and warned practitioners against localising their treatment to such an extent as to lose sight of the connection of the process with the general economy. He thought that the leptothrix was rather an incident than a cause. After remarks from Dr. FRIEDRICHs and Dr. ATKINSON, Dr. RIGG spoke in support of the local origin of the disease, which he could produce at will in the healthiest individual. In reply to Mr. FOTHERGILL, Mr. COFFIN said that after his treatment the socket and gum were in part restored, but not entirely. Dr. SNOW (of Harvard) said he believed in the local origin of the disease, and bore testimony to the success of Dr. Rigg's treatment. After remarks from Mr. C. S. TOMES, Dr. WALKER, in the course of his reply, related particulars of two cases which he thought told against foreign matter being the sole cause of the disease. In the one case

the unhealthy action in the gum persisted after extraction of the teeth, and in the other he found he was able to obtain pus on pressing the sockets of the affected teeth, but none from the sockets of the healthy teeth.

Mr. J. TOMES then proceeded to read his paper on "Dental Education and the Means thereto." It contained a brief sketch of the history of Dental education in England, and was addressed more to the foreign than the English members of the section, the latter of whom may be supposed to be sufficiently familiar with the subject. In the discussion which followed the PRESIDENT congratulated the Dental profession as having, on the present occasion, an opportunity of showing that the foundations of their education were broad and strong; Dr. BUTLER (of Cleveland), U. S. A., said that the manipulative skill required of the Dentist could only be acquired in comparative youth; Dr. SHEPARD (of Harvard University), signified his hearty approval of the position taken up by Mr. Tomes; Prof. HOLLÄNDER, of Halle, stated the points of difference between the position of the profession in Germany and in England; and Dr. TAFT (of Cincinnati), gave a brief history of the establishment of special Dental Colleges in America.

A paper was subsequently read by Dr. MARSHALL WEBB (of New York), entitled "The Restoration of Contour, the only way to keep Permanently Separate the Margins of Enamel in Proximal Surfaces and Prevent Recurrence of Decay," and the meeting adjourned.

In the afternoon the section held a joint meeting with Section VII, in the rooms of the Antiquaries' Society (Dr. Charles West in the chair) to discuss the subject of "Erosion or Honey-combing of the Teeth." In the morning's sitting of Section VII, M. PARROT had introduced into his paper on "Syphilis as the Constant Cause of Rickets," a description of the various kinds of atrophy of the teeth, which will be found in another column. The afternoon's discussion was opened by Dr. MAGITÔT, who, in a paper entitled "Honey-combed Teeth regarded as an Evidence of Infantile Convulsions," had attempted to refute the hypothesis of Parrot and Hutchinson, who had attributed the appearance in question to hereditary syphilis. The paper was profusely illustrated by models, specimens, and tabulated statistics. A lively discussion followed in which Mr. MOON, Mr. C. S. TOMES, Dr. DULLY, Dr. BLACHE, Mr. HAYWARD, Dr. PARROT, Mr. COLEMAN, and Mr. JONATHAN HUTCHINSON took part. The most important speech was that delivered by Mr. HUTCHINSON, who showed that he had never attributed the appearances described by

M. Magitôt to syphilis, and admitted that there was some ground for M. Magitôt's conclusion. M. MAGITÔT replied and the meeting adjourned.

FOURTH DAY.

August 6th.—The chief paper was one by Mr. ARTHUR UNDERWOOD and Mr. W. J. MILLES, entitled, "An Investigation into the Effects of Organisms upon the Teeth and Alveolar Portion of the Jaw." It detailed the varieties of organisms most frequent in the mouth; the conditions favorable to their existence and proliferation; their chemical products; and the conditions which rendered their life impossible. It then went on to describe the effects of organisms upon enamel and upon dentine, the latter being demonstrated by contrasting the destruction of tissue—(a) in teeth subjected to the action of acids under aseptic condition; (b) in teeth subjected to the action of germs under excessively septic conditions. It was further shown that in previous experiments upon the causation of caries wherever experimenters had succeeded in producing caries artificially, they had subjected the teeth to septic conditions, and where they had employed antiseptic agents they had not succeeded in producing caries. The paper concluded with an account of the effects of organisms upon the surrounding tissues, and with a brief résumé of the authors' experience of eucalyptus oil and iodoform employed in alveolar abscess, in dead roots, and in roots partially dead. After a brief acknowledgment from the PRESIDENT, Dr. TAFT, of Cincinnati, said that the experiments were interesting, but looked in one direction only. It was, indeed, impossible to simulate out of the mouth and on dead tissues the changes which took place in the mouth during life. Mr. DEUTZ doubted if the results obtained by the authors would long remain of any great value, but still he had the highest respect for their work. After a warning from Dr. W. H. ATKINSON to investigate each for himself the specimens presented, and not to accept what was seen by others as real authority, Mr. S. J. HUTCHINSON congratulated the authors on the result of their three years' hard work, but would ask them not too hastily to abandon the theory of the presence of tubes in dentine. Mr. J. TOMES thought that until they had some better explanation of caries than had been yet brought forward, the theory now advanced might be accepted provisionally. Mr. C. S. TOMES contended that the present researches were the first which had been rigorously made on the production of caries by septic organisms, and they had a practical bearing on the whole of the Dentist's work.

Mr. COLEMAN held that the paper was a distinct addition to their knowledge of dental caries. Mr. SPENCE BATE thought that the experiments deserved the high compliment of being thoroughly sifted, but he felt it was too soon to accept the theory of the authors even provisionally. The negative evidence was powerful, but might not some other influence besides that of germs have been admitted to the teeth together with the germs? The PRESIDENT thought that there was great force in Dr. Taft's remark that the conditions of vitality in the mouth might cause the naturally produced caries to differ from that caused artificially; and Mr. UNDERWOOD, in reply, briefly met the various criticisms which had been passed on the researches, and expressed his thanks for the way they had been received.

Dr. DEAN then read a paper on "Alveolar Abscess," in which he described the method of treatment which he had found most useful in practice. This was, briefly, the enlargement of the root canal, the clearing of the apical foramen, the injection of creosote through the latter into the abscess, the filling of the root canal with aseptic cotton, and the sealing of the cavity of decay. This treatment was subject to modifications according to the tooth dealt with, but the principle was the same throughout, and in his hands the results had been most satisfactory.

A paper was then read by Dr. NORMAN KINGSLEY, on "Civilisation in its Relation to the Increasing Degeneracy of the Human Teeth." In the course of an eloquent address Dr. Kingsley showed that civilisation was not responsible for the physical or other evils which followed in her path. These came from the neglect of, or the abuse of, the agencies, the resources, or the products of civilisation. The most alarming evil of civilization at the present time, from a hygienic view, was the increase of nervous diseases, and coincident with this, and co-related to it, each influencing and in a measure causing the other, was the increasing deterioration of the teeth. In the discussion which followed, Dr. KIRBY BEARD gave a cordial support to the theory of the author, but M. MAGITÔT would not accept it without the production of statistics. Mr. J. R. MUMMERY then propounded a series of questions relating to the predisposing causes of caries, which will be published by us in our full report of the Section meetings.

The present sitting concluded with a communication from Mr. WALTER COFFIN, in which he described a new method of completely and rapidly evacuating extensive abscesses by means of injecting a strong solution of peroxide of hydrogen. Mr. COLEMAN made a few remarks, and the meeting rose.

FIFTH DAY.

Monday, August 8th.—The first paper on the list was one by Mr. WALTER COFFIN, entitled, "A Generalised Treatment of Irregularities." The paper was illustrated by numerous models and by photographs and apparatus showing the evolution of an almost generalised method. The instrument employed was the well-known expansion-plate of the author's father, the function of which was the mechanical anticipation of favorable conditions by permitting a relative motion or maintaining a controllable reaction between its independent symmetrical halves. The application of the apparatus to various cases was illustrated and explained, and the criticisms of the section on this general method of treatment were earnestly desired by the author. The SECRETARY then read a contribution on "The Causes of Irregularities of Position of the Teeth," by Dr. T. B. GUNNING, of New York. The chief causes were alleged to be modifications in the size and shape of the jaws, premature loss of temporary teeth, disease of one or more temporary or permanent teeth, and mistaken views in respect to the treatment of teeth. Each of these causes was briefly illustrated, and the paper concluded with a description of the means best adapted to remedy irregularities. Mr. OAKLEY COLES then read a paper on "The Origin and Treatment of certain Irregularities of the Teeth." The author traced the influence of the antrum in the causation of certain irregularities, and the practical points he deduced were—(1) that if expansion was tried, it should be in the first instance expansion of the jaw with the teeth in it, and regulation of the teeth only as a secondary procedure; and (2) that in severe cases the teeth that were out of position should be extracted and the contour of the arch subsequently restored by expansion. Dr. JOSEPH ISZLAI, of Buda-Pesth, then read a paper illustrating "Carabelli's 'Mordea Prorsus,' and its relation to 'Prognathia Ethnologica,' and Meyer's 'Crania progenæa.'" He insisted on the importance of an accurate nomenclature in reference to the different kinds of closure of the front teeth, and subjected Carabelli's statements on this subject to a careful criticism, stating his own views on the subject, and concluding with a more exact definition of Meyer's 'Crania progenæa.'

In the discussion which followed, Dr. ROSENTHAL, of Liege, Mr. CUNNINGHAM, Mr. OAKLEY COLES, and the PRESIDENT took part, after which Mr. COFFIN replied, and the meeting passed to the consideration of Mr. COLEMAN's paper on "Erosion of the Teeth." The author commenced

by accurately defining what he meant by erosion of the teeth or decay by denudation, and explained the points in which it differed from true caries. He discussed its pathology and causation by attrition, and illustrated them by microscopical sections. Passing on to the treatment, he said that he had found the application of sal volatile three or four times a day the most useful remedy, and he concluded with an appeal to the Congress to utilise the present occasion for agreeing on a general nomenclature of diseases. The best classification which had been suggested of the processes by which the teeth suffered from diminution in volume was as follows:—*(a)* By true absorption equivalent to the normal healthy process which was witnessed in the passage from the deciduous to the permanent dentition; *(b)* by erosion or interstitial change, a process of a chemical character, differing from true absorption in being the product of abnormal changes; *(c)* by denudation or abrasion, which was simply a slow mechanical rubbing away, either from contact with opposed teeth or friction against foreign substances; and *(d)* by force, or piecemeal chipping away of portions varying in size according to circumstances. Dr. DEUTZ, in opening the discussion, took the opportunity of saying that Dr. MAGITÔT's opinions on erosion of the teeth did not represent those of the profession on the Continent. The discussion was continued by Dr. C. S. TOMES, Mr. GADDES, the PRESIDENT, and Dr. TAFT, after which Mr. COLEMAN replied, and the meeting adjourned.

SIXTH DAY.

August 9th.—The first paper was by Dr. TAFT, of Cincinnati, on "Antral Abscess." The author described the antrum itself and the parts about it, then went on to deal with the treatment of antral abscess in its simple and complicated forms, considering also the influence of disease arising in this cavity upon other and neighbouring structures, and instancing cerebral disease as one of the serious and even fatal maladies which might start from disease of the antrum. Mr. S. J. HUTCHINSON and Mr. C. S. TOMES having commented on this communication, Dr. DEUTZ read a paper, in which he suggested that the term caries be abandoned as inappropriate. Caries of the teeth was an affection totally distinct from caries of the bone, and the use of the same term for different diseases caused great perplexity not only to students, but to surgeons and practitioners who did not give a special study to Dentistry. Dr. ATKINSON combated the views of Dr. Deutz, contending that there was only a difference of degree between caries of the teeth and caries of the

bone. Mr. HUNT then exhibited certain models which he had prepared during the Session of the Congress, showing the advantage of the metal used by electro-stereotypers for making casts of the mouth in preference to plaster, which was usually unable to bear the screw pressure in the working of celluloid plates. Dr. PARMLEY BROWN next read an interesting paper on "Contour Restoration of the Superior Central Incisors," and illustrated by means of diagrams his treatment of caries in its several stages. An animated discussion followed, in which the following gentlemen took part:—Dr. ATKINSON, Mr. HUTCHINSON, Dr. ROSENTHAL, and Mr. STOCKEN.

The business of the section being concluded, the President, Mr. E. SAUNDERS, delivered the following address :

Gentlemen,—Our Congress, so far as concerns Section 12, now ends, and with it our pleasant and profitable interchange of thought. We shall doubtless be asked on all sides, what is the outcome of all these great and busy gatherings? What shall be our answer? For the moment we have none, or one of but little significance or distinctness. We have seen and have come to know men for whom we may have long entertained a high regard and esteem, or towards whom we may have cherished a certain amount of groundless prejudice, and in either case have had opportunity of forming a sounder judgment. And in other ways we have profited much, as must needs be the case when we encounter mental idiosyncrasies disposing on the one side to speculative theories and deductions from pathological experiment, and on the other to a degree of patience and manipulative skill hitherto undreamt of. But time will be required accurately to estimate the benefits to science, to our art, and to ourselves, which may be traceable to this great gathering of the original and active minds which shed lustre on our profession throughout the civilised world.

On the occasion of the opening of our Section I spoke of one great use of congresses as affording an opportunity and a stimulus to intellectual effort, and this has been, I think all will admit, fully justified by the work of the week. How many admirable papers to which our attention has been directed must have been lying by for a more convenient season but for this great and august occasion! That we are unable to point to any very decided expression of opinion on certain

subjects which have long been regarded as *sub judice*, and that many vexed questions have received no satisfactory solution may be plausibly alleged; but it is certain that the attainment of this result must be advanced by such discussions as have taken place within these walls during this short session. As is befitting on the occasion of an International Congress, we have had papers by various hands and from many countries on novel modes of practice, such as replantation of the teeth after excision of their necrosed parts, supported by Parisian and academic fervour, and tardily admitted by English conservative distrust of the untried, but which will probably now settle into recognised operations within certain limits of age, of temperament, and alveolar integrity. We have had explanative treatises on alveolar abscess, on antral abscess, on wasting of the alveoli, erosion, the treatment of irregularities, on anæsthetics, on the reproduction of bone with reference to the maxillæ, on Dental Surgery in the army, and an eloquent and philosophical discourse on a subject of the first importance, on the supposed tendency to degeneracy in the race as shown by the frequency and early occurrence of decay of the teeth. Our session also boasts a thoroughly practical contribution to the art of Dental Surgery in connection with contour filling, and a distinct step in histology with reference to the nature and origin of caries, which is as a chink in a dark chamber admitting an attenuated beam of light, suggesting a fuller revelation behind. Of all these we may without presumption now take account, although without attempting to determine the ultimate value. To those who have taken part in this Congress and who have conduced to this result, no less than to those who will in future read its history and benefit by what it has achieved, this will, I think, appear no inconsiderable gain. The discussions have been incisive and animated without acrimony, and devoid of the misrepresentations by which they are too often unfavorably characterised, and have not seldom risen to a pitch of eloquence which would not have been out of place in a legislative chamber.

Gentlemen, the sad hour of parting has come too soon, but the recollection of our too brief intercourse will long remain and linger in our memories, as the odours of nature's jewels, the flowers, diffuse themselves with a stronger fragrance with the descending night. (Applause.)

A vote of thanks to the President having been passed with acclamation, the proceedings of the Section terminated.

DEMONSTRATIONS AT THE DENTAL HOSPITAL OF LONDON.

A CLINICAL demonstration was held at the Dental Hospital of London, Leicester Square, on Thursday, August 4th, at 2 p.m. The demonstrators consisted of Mr. A. Woodhouse, of London, Mr. Redman, of Brighton, Mr. Parson, of Clifton, and Dr. Finley Thompson, of London.

Mr. WOODHOUSE filled a cavity on the anterior surface of the second left lower molar, and then filled the posterior surface of the first left lower molar. He used his gold in the form of rope and cylinders, and in the first lower molar finished off adhesively; he also used a few pellets of tin foil so as to get it all round the edge of the cavity, but more especially at the cervical margin.

Mr. REDMAN filled a cavity on the anterior surface of the second left upper molar adhesively with hand pressure. Unfortunately towards the end of the filling the enamel cracked from the cervical margin to the cutting edge, but the filling was finished without this portion breaking off entirely.

Mr. PARSON, who is ambidextrous, filled a small cavity on the anterior surface of the right upper canine, lateral incisor being absent; he then filled a large cavity on the distal surface of the right central, the whole of the lingual wall being wanting. He worked with pellets entirely non-adhesively.

Dr. THOMPSON fitted in an artificial second right upper bicuspid, the tooth consisting of a mineral face with a solid gold block at the back; from the anterior and posterior sides of this block a piece of gold wire projected, which fitted into cavities on the anterior surface of the molar and the posterior surface of the first bicuspid. The tooth was put in its place and gold was then built round the wires and the cavities of both teeth. Dr. Thompson's next case was a replantation. He removed an upper molar, filled it adhesively, and returned it to its place. We have not sufficient room to give the process of the operation, but must refer our reader to his lectures on the subject which have appeared in the Dental journals. The great point, however, is that he places a drainage tube from the apex of the root to the crown, so as to allow purulent matter or gases to escape; this is filled up in the course of a few days.

Mr. W. H. COFFIN, showed an electric machine for working the burring engine, also an electric mallet, illuminators, reflectors, and cauteries, the latter being most useful in removing small polypi of the gum in interstitial cavities. —W. W.

Miscellanea.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following were the questions in the recent examination for the Dental licence.

FIRST EXAMINATION.

(Two hours allowed. At least one question to be answered in each Section).

SECT. I.—ANATOMY.

1. Describe the parotid gland, and state how saliva is conveyed from it into the mouth.
2. Give the origin, insertion and action of the extrinsic muscles of the tongue.

SECT. II.—CHEMISTRY AND PHYSIOLOGY.

1. Give the symbols of sulphuric acid, hydrochloric acid, ammonia, and chloride of sodium.
2. Give two examples respectively of basic, acid, and neutral oxides.
3. Describe the changes which occur during respiration, as they affect the blood and the expired air.

SECOND EXAMINATION.

Three hours allowed. At least one question to be answered in each of Sections I and II; and two questions in each of Sections III and IV.

SECT. I.—SURGERY.

1. What is Wry-neck? What muscle is at fault? And what is the appropriate treatment?
2. Describe the operation for Hare-lip.

SECT. II.—MEDICINE AND MATERIA MEDICA.

1. Discuss and give examples of dental diseases viewed (1) as a cause, and (2) as an effect of affections possessing more of a constitutional than a local character.
2. Define respectively an alterative, a cathartic, a diaphoretic, and a tonic. Give one example of each, its dose, and manner of administration.

SECT. III.—DENTAL ANATOMY AND PHYSIOLOGY.

1. Describe Meckel's Cartilage, and state what part it plays in intra-uterine life.
2. Describe the minute structure of Alveolo-dental Membrane, and state its origin and functions.
3. State the period and order of eruption of the temporary and the permanent teeth.

SECT. IV.—DENTAL SURGERY AND PATHOLOGY.

1. Under what conditions may an exposed pulp be preserved, and how?
2. How are roots of teeth which have passed into the antrum to be got rid of?
3. What are the more common affections of the soft structures of the mouth? and give the treatment.

PASS LISTS.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

DURING the July sittings of the Examiners, the following gentlemen passed their first professional examination for the Licence in Dental Surgery :

Bailey, John James, Longton.
Blandy, Henry, Chesterfield.
Finlayson, Matthew, Alloa.

Mansell, Thomas, Hanley.
Monroe, David, Edinburgh.
Spain, John Sedgwick, Dover.

and the following gentlemen passed their final examination and were admitted Licentiates in Dental Surgery :

Bailey, John James, Longton.
Mansell, Thomas, Hanley.

Spain, John Sedgwick, Dover.
Thomson, Robert Peel, Dublin.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

The following gentlemen were admitted Licentiates in Dental Surgery at the sittings of the Examiners, held on 29th and 30th July :

Blandy, Henry, Nottingham.
Forester, William, Newcastle, Staff.
Foulds, James, Glasgow.
Holdcroft, George, Beccles.
Hambly, Alf. Geo., Plymouth.
Kay, H. H. W., Southport.

McCash, J. M., Dublin.
Perkins, J. Henry, Clifton.
Roberts, J. Wm., Dudley.
Sleep, Frederick, London.
Wilson, John A., Bangor.

Six candidates were remitted, three of them in the earlier and three in the later stage of examination.

Errata.—In the pass list of the Royal College of Surgeons in Ireland, published in our last issue, *for* James Lorden Crocker, London, *read* James Lorden Crocker, Southampton, and *add* the name of Deane Godfrey Webb, London.

APPOINTMENTS.

MOORE, E. W. C., L.D.S.R.C.S., has been appointed Dental Surgeon to the Bloomsbury Branch of the Metropolitan Medical Provident Association.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our
Correspondents.]

FORCEPS, PAST AND PRESENT.

To the Editor of the 'British Journal of Dental Science.'

SIR,—From a statement in your Journal dated July 15th inst., I see it is your intention to publish in your next issue an article on "Forceps, Past and Present." I venture to proffer some information on the subject which may prove interesting.

It does not seem to be generally known who was the inventor of the forceps now used by Dentists. From the enclosed engraving, taken from the 'Transactions of the Society of Arts' for 1826, it is clearly demonstrated that the late Mr. C. Fay, my grandfather, originated the principle of fitting the beaks of the instruments to the necks of the teeth, for which invention, in addition to that of the excision forceps, he was presented with a silver medal by the Society of Arts of London. I have the original medal in my possession, handed down to me by my father, the late T. P. Fay, Dentist, of this town.

The medal bears the inscription: "To Mr. C. Fay, 1826, for his Improved Forceps for Dentists." Of course, since then many differently shaped handles have come into use, but the "principle of adapting the beaks of the forceps to the teeth upon anatomical grounds" remains the same.

I am, &c.,

T. W. W. Fay, M.R.C.S.,
Surgeon-Dentist.

3, Canning Street, Liverpool;
July 26th, 1881.

[A copy of the engravings enclosed by Mr. Fay will be found at p. 776.]

THE IRISH DENTAL DIPLOMA.

To the Editor of the 'British Journal of Dental Science.'

SIR,—If not encroaching too much upon your space, I should like to express my great sympathy with the letters you published respecting the Irish examination. I consider that any one who has passed the examination successfully, has every reason to consider himself on an equality with those who have passed at other colleges. For it has unquestionably tested his knowledge and capabilities, and

leaves nothing to be ashamed of. Some were turned back who had been studying for very many months, sparing neither time nor money. Numbers have gone up twice and some three times.

I should like to add my testimony to the courtesy and gentlemanly bearing of the examiners, and to endorse all that your correspondent says about Dublin and its surroundings, and the anxiety inseparable from "going up."

I am, &c.,

FELIX LAMB, L.D.S.I.

128, Newington Green Road, N.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Could you kindly find space in your valuable Journal for me to ask a question of the licentiates of the Irish College?

Are you ashamed of your diploma or the college from whence obtained? If not, why do so many of you designate yourselves so unfairly and unjustly L.D.S.R.C.S., omitting the *I*. I anticipate a few answers. I am, &c.,

VELE BENE FACERE.

A DIFFICULTY UNDER THE DENTISTS ACT.

To the Editor of the 'British Journal of Dental Science.'

SIR,—The executors of a deceased Dentist wish to carry on his practice for the benefit of his family; none of the executors, nor any member of the family are Dentists, and I cannot see how the practice can go on under the "Dental Act." The executors might *dispose of it* (A) for a given sum, or (B) for an agreed proportion of the profits to be paid to them annually, *but to hold control of it and to carry it on as executors, appears to me to be impracticable*. Do you know of such a case, or do you see how the proposed arrangement can be carried out?

I am, &c.,

Q.

[We do not see that the existence of the Dentists Act in any way increases the difficulties of the executors. It is quite competent to them to secure the services of some legally qualified Dental practitioner to carry on the business, and the arrangements made for this purpose would not necessarily be modified by recent Dental legislation. At the same time it is unusual as well as unwise to retain interest and responsibility in a practice over the conduct of which you have no control.—EDITOR.]

MONTHLY REPORT OF CASES TREATED AT THE
DENTAL HOSPITAL OF LONDON,
FROM JULY 1ST TO JULY 30TH, 1881.

Extractions	Children under 14	366
	Adults	810
	Under Nitrous Oxide	336
Gold Stoppings		108
White Foil ditto		4
Plastic ditto		440
Irregularities of the Teeth treated mechanically		111
Miscellaneous Cases		296
Advice Cases		121
Total.....		2592

ARTHUR CURLE,
House Surgeon pro tem.

MONTHLY REPORT OF CASES TREATED AT THE
NATIONAL DENTAL HOSPITAL,
FROM JULY 1ST TO JULY 30TH, 1881.

Number of Patients attended	1227
Extractions { Children under 14.....	313
Adults.....	602
Under Nitrous Oxide	88
Gold Stoppings	72
Sheets of Gold used, independent of Pellets.....	55
Other Stoppings	265
Advice and Scaling	69
Irregularities of the Teeth	30
Miscellaneous.....	154
Total operations	1593

JOHN S. AMOORE,
House Surgeon.

QUARTERLY REPORT OF CASES TREATED AT THE
DENTAL HOSPITAL OF EXETER,
FROM APRIL 1ST TO JUNE 30TH, 1881.

Extractions	Children under 14.....	271
	Adults	495
	Under Nitrous Oxide and Ether.....	28
Stoppings	With Gold	16
	„ White Foil	34
	„ Plastic Material	207
Miscellaneous (Irregularities of the Teeth, Scaling, &c.).....		187
Total.....		1238

HENRY B. MASON,
Hon. Sec.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.

ANSWERS TO CORRESPONDENTS.

- "ENQUIRER."—Under section 37 of the Dentists Act all cases such as yours come individually under the consideration of the Medical Council. Last month the Council allowed to be registered Dental apprentices whose articles commenced later than yours, so that there will probably be no difficulty in your case; but you had better apply to the Registrar.
- "F. K."—We never recommend any special Dentist.

Communications have been received from Messrs. J. W. Cunningham (London), Dr. F. Taylor (London), Hon. Sec. of Students' Society of Dental Hospital of London, F. W. Bate (London), Edwin Saunders (London), R. Rogers (Cheltenham), Jas. Hardie (Alloa), Dr. Gillespie (London), C. S. Tomes (London), Frederick Rose (Liverpool), T. W. W. Fay (Liverpool), Arthur Curle (London), Sec. of Great Northern Hospital, Sec. of the Faculty of Physicians and Surgeons, Glasgow, Thomas Fletcher (Warrington), Edward Trimmer (London), W. V. Ditcham (Blackheath), C. A. Hayman (Bristol), F. Canton (London), J. R. Brownlie (Glasgow), Registrar of General Medical Council, Felix Lambe (London), Sec. of Royal College of Surgeons of Edinburgh, "Q," Berks T. Hutchinson (London), J. L. Crocker (Southampton), Henry B. Mason (Exeter), J. S. Amoores (London), "Enquirer," "L.D.S.I.," Claudius Ash & Sons, R. Schlenker (St. Galle), D. G. Webb (London), A. B. Verrier (Weymouth).

BOOKS AND PAPERS RECEIVED.

- "A Manual of Dental Surgery and Pathology," by Alfred Coleman. 'Lancet.' 'British Medical Journal.' 'Medical Times and Gazette.' 'Specialist.' 'Dental Advertiser.' 'Prospectus of St. Thomas's Hospital Med. School.' 'Pharmaceutical Journal.' 'Giornale di Corrispondenza dei Dentisti.' 'Vierteljahrsschrift des Vereins Deutscher Zahnkünstler.' 'Prospectus of Westminster Hosp. Med. School.' 'Notes on New Drugs.' 'Dental Cosmos' (back numbers). 'Missouri Dental Journal.' 'Glasgow Medical Journal.' 'Bristol Mercury.' 'Le Progrès Dentaire.' 'Birmingham Daily Gazette.' 'Prospectus of Edinburgh Dental Hospital and School.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

No. 327. LONDON, SEPTEMBER 1, 1881. VOL. XXIV.

ON THE SCIENTIFIC STATUS OF MEDICINE.

AN ADDRESS DELIVERED BEFORE THE SECTION OF DISEASES OF
THE TEETH OF THE INTERNATIONAL MEDICAL CONGRESS.

By PROFESSOR OWEN, M.D., C.B., F.R.S.

THE aim of every student of medicine—and such the true student never ceases to be—is to raise the healing art to the status of a science.

The most significant testimony that the application of human intellect to comprehend phenomena has attained its noble aim, is the “power of prediction.”

When the astronomer foretold the date to hour and minute of the advent of an eclipse, or of a comet, or even of a cluster of seemingly migrant aërolites, his peaceful victory was manifest. So, when the palæontologist, on inspection of a new-found fragment, proclaimed the nature and affinities of the extinct animal which, long ages past, had left such fossil evidence of its existence, his methods of interrogating and interpreting Nature were acknowledged to be of the rank of a science.

Certificates to life-assurance offices,* and the bulletins issued by the medical attendants on personages in whose health and life the public have interest, are amongst the forms of prophecy in the precise fulfilment of which the claims of medicine to a like rank may be tested.

* Mr. A. H. Smee, in his ‘Hunterian Oration’ of February 9th, 1881, at the Hunterian Society of London, affirms, from his experience as medical adviser to an insurance office receiving 1000 certificates annually: “I have noticed from year to year, for the last fifteen years, the number of cases in which, if the diagnosis of the medical attendant was right, his prognosis was manifestly wrong” (p. 6).

The definition of disease is the expression of a sum of knowledge and experience by which the constant and essential characters are distinguished from accessory and occasional symptoms; and the remedies applied are, in like manner, those which the best experience has proved to be most potent. The technical terms of maladies so discerned are, as a rule, "collective names for groups of morbid symptoms."

Permit me to trespass on your patience and crave your indulgence toward one who has long ceased to practise the profession, deemed divine by sages of ancient Greece, if I venture to submit a few examples illustrative of the dependence of medicine upon a once-deemed unpromising inlet of light, but of which, in researches connected with the branch of medicine of the present Section, I have availed myself with unexpected advantage.

The healer may be called in to one whom he finds suffering from "loss of appetite, discomfort and weight in the gastric region, distension of stomach, with eructations and nausea:" to this group of symptoms he applies the name of "dyspepsia;" if it be aggravated by aching or burning pain referred to the pit of the stomach, he may term it "gastrodynia." According to symptoms, he may prescribe, for one class carminatives, for another alkaline carbonates in effervescence, or may be led by special indications to administer such drugs as nitrate of silver, hydrocyanic acid, bismuth, and opium, the latter especially, if pain be attended with spasmodic action.

If the physician be called to a case in which the alvine evacuations are excessive in quantity and unnatural in quality, and sums up such symptoms as diarrhœa, he may administer castor oil or saline purgatives, followed by various astringents, vegetable or mineral. But should a patient, whom the healer may see for the first time, be suffering also from febrile or pyrexial symptoms, thirst and headache, tenesmus and tormina with rigid abdominal walls, frequent uncontrollable calls to defæcate, with little discharge save of watery mucus, of peculiar fœtor, perhaps stained with blood, he pronounces the case to be one of dysentery, and may prescribe leeches, fomenta-

tions, and, according to one authority, may administer purgatives, but, according to another, opiates. In one of our latest compendiums or practice, it is written of this disease—"Calomel is said to have fallen into disuse, and perhaps deservedly" (Bristowe's 'Theory and Practice of Medicine,' 1878, p. 683). An eminent physician, Dr. Trousseau, has confidence in ipecacuanha.

Again, the aid of the medical man may be invoked to abate or banish a group of symptoms which he terms peritonitis; and, under this treatment, there may supervene, without the least evidence of causation, another series of sufferings—pain during respiration, dyspnœa—calling for leeches to the chest, counter-irritants, as mustard plasters, flannel rollers and compresses, opiates; in short, the recognised remedies for pleuritis. Again, these symptoms may be aggravated by those of pneumonia, requiring other or added modes of treatment; and the pulmonary symptoms may become further complicated by abnormal affections of a more vital thoracic organ—"the bosom's lord."

If pain and oppression in the region of the heart predominate, with accelerated pulse, and if acoustic scrutiny be superadded to vocal and visual interrogation, the accomplished physician may be able to pronounce the malady to be either pericarditis or endocarditis. In either case he will prescribe the appropriate remedies, and form, according to their effects, his prognosis, or prophecy of results.

Should diffused muscular pains supervene, or be associated with the peri- or endocardial symptoms, and these pains be attended with stiffness, loss of muscular power, or repugnance to exert such power, and a healer be invoked at this stage, he may pronounce it to be a case of "rheumatismus," or even of "acute rheumatism;" and his treatment will be guided by the urgency or predominance of one or other of the symptoms. But the intractability of the so-called malady is significantly indicated by the expressions of one of our most accomplished physicians, under whom I was myself a student, and whose loss was deeply regretted and is still lamented by his survivors. Dr. Peter Mere Latham, in his 'Lectures on Subjects connected with Clinical Medicine,' in

which relation to practice and instruction he was a master, writes of acute rheumatism as follows:—"No disease has been treated by such various and opposite methods. Venesection has wrought its cure, and so has opium, and so has calomel, and so have drastic purgatives." (Op. cit., Lecture x, "Diseases of the Heart.") Had Latham, at the date of that lecture, been aware of a subsequently discovered cause of acute rheumatism, he would have known that, at such stage of the cause's baneful operations, the malady was beyond the influence of any of the proposed and supposed remedies. But, without knowledge or suspicion of such cause, noting abatement of symptoms as time went on, bringing a transition from the acute to the chronic stage of rheumatism, the experienced physician might well attribute the cure of the tetrasyllabic symbol of symptoms to one or other of the remedies which the then stage of his art had suggested.

In a modified form of muscular malady, to which the phrase "rheumatic arthritis" has been applied, and which, at a dropsical stage, proved fatal, a justly celebrated professor of physiology in the University of Heidelberg observed, in his post-mortem examination, that the muscular tissues of the defunct were studded with minute white specks, which quickly blunted the scalpel. Chemical analysis showed the grittiness to be due to deposits of phosphate and carbonate of lime; and Tiedemann confirmed his observation in Froriep's 'Notizen' for 1823. The case was concluded to be a previously unnoted instance of "diffused gout." The pathologist was little aware how near he was to a discovery to which he might have been led by application of the microscope.

The finding of the wormlet within the cysticule in 1835 ('Proceedings of the Zoological Society of London,' 8vo, February 24th, 1835; also 'Transactions,' *ibid.*, 4to, vol. i), and the more important discovery by Dr. Zenker, of Dresden, in 1860, of its causative relations to a direful disease, have demonstrated that the several groups of symptoms to which I have briefly referred under the respective technical denominations applied to their groups, may, one and all, be due

to the deglutition of *Trichina spiralis*. The larva of this wormlet in the flesh of the animal it infested, being introduced as food into the human stomach, finds in that warm cavity an environment of muco-chymous nutriment, in which it rapidly matures, acquires activities, and develops its generative organs and products. If permitted to pass into the intestinal canal, it there excludes its progeny, which also rapidly acquire their full size and procreative faculty. But the grave symptoms of their presence are due to the curious migratory instinct of the young trichinæ, which impels them to make their escape by perforating the tunics of the intestine, in the course of which operation the majority find their way into the venous capillaries. Such as wriggle through the meshes of the vascular network bore their way through the serous tunic of the gut, and pass into the abdominal cavity, whereupon the peritonitic are complicated with the enteric symptoms. But the majority are carried to the right side of the heart, and thence by the pulmonary artery to the lungs. Threading then the capillaries continuous with the commencement of the pulmonary veins, the trichinæ are brought back to the heart. As many as may have burrowed into the vascular walls of the right or of the left ventricle, or may have got into the cavity of the pericardium, give rise to the symptoms summed up in the terms of art already cited.

Trichinæ which may have strayed into the tissue of the lungs, or which may have wriggled through the pulmonic serous covering, and from the pleural cavity may have invaded the serous membrane in their way to the intercostal muscles, add the pleuritic and pulmonitic to the pericarditic symptoms.

The natural affinity or attraction of the trichinæ is to myosine, or the muscular tissue. There their wanderings come to an end. They are conveyed so soon and so rapidly by branches of the carotids to the muscles of the larynx that the trichinæ are there found most constantly and abundantly; but usually so vast is their number, that they are carried to the voluntary muscles of the entire body.

In the exceedingly delicate connective tissue of the ultimate bundles of the ultimate fibrils, the young trichinæ

coil themselves up to their larval repose, exciting no other organic change than an outflow of plasma, which condenses with the contiguous cellulosity, and become moulded into the shape of an elliptic case, in which may be seen, under the microscopic compressorium, one or more of the tiny worms disposed in two or more circular coils.*

The natural history of *Trichina spiralis* leads the physician, cognisant thereof, to put a question to his patient, the reply to which would reveal the veritable cause of the malady at whichever of the stages—dyspeptic, dysenteric, pleuritic, pneumonic, cardiac, or rheumatic—he might happen to have been called in. That question would be: “What did you eat last before you became unwell?” If the answer denoted pork in any of its culinary forms, the physician would require a portion of the meat, or of the ham or sausage; and, being practised, as every competent medical man now is, in the use of the microscope—an instrument as indispensable to the consulting-room as the stethoscope—he would detect the minute parasite, and recognise the *fons et origo* of all and every the groups of symptoms personified under one or other of the several before-cited tetra- or pentasyllabic terms of medical art.

If, fortunately for the patient, he were called in at the first stage, ere the wormlet had passed on out of the stomach, he might ask for the mustard-pot, and therewith, or with any other quickly attainable strong and promptly acting emetic, clear the stomach of its lethal invaders; after which he might administer a strong dose of calomel, knowing its destructive operation on any lingering trichinæ which might not have been dislodged. If the aid of the scientific healer had not been invoked until the dysenteric symptoms had set in, still he might see a chance of directly combating the *vera causa* by combining calomel with the remedies for which accessory symptoms would call. On the supervention of the pulmonary or cardiac troubles, the physician would know, with a scientific knowledge enabling him to pro-

* These cysts, which in their partially calcified state Tiedemann conceived to be arthritic deposits, Hilton subsequently described as a species of cysticercus (‘Medical Gazette’ for February, 1833).

phesy, that he could do no more in the way of cure of the malady, *i.e.* in eradication of its cause, but that his treatment henceforth must be merely palliative. He now could predict confidently to his patient and the friends that symptoms of pleurisy and pericarditis would set in, that the chest-symptoms would be followed by rheumatic—probably severely rheumatic—ones; furthermore, that, if life were preserved until these symptoms should subside, a certain deterioration of muscular power, with general stiffness, would long remain, if ever lost. The prophet would know that, when such stage of recovery was gained, although the wormlets would die and dissolve, their cysts would remain, and arrest and precipitate salts of lime, such as attracted, but misled, the conclusions of the justly celebrated anatomist and physiologist already cited.

My aim, as may perhaps have been surmised by the distinguished members of the medical profession whom I have the honour to address, has been to exemplify under what condition and in what proportion medicine may be termed an art, and under what circumstances it rises to the dignity of a science.

In the degree in which the veritable cause of groups of symptoms summed up as dysentery, pneumonia, rheumatism, and other species of disease is recognised, and the remedy specially applicable to the removal of such cause has been experimentally determined, the applier of such knowledge to the relief of suffering mankind exerts a power which science imparts.

The technical terms in which the symptoms of one or other of the four or five stages of trichinosis would have been defined prior to the discovery of their veritable cause; when also, under the same pre-trichinal condition of knowledge, various causes might have been assigned, and the then approved legitimate remedies applied to the respective groups of symptoms—exemplify a stage of medical research which had not risen to the level of science. A significant evidence of such status will be manifested when specific names of disease indicate their cause, and are founded on demonstrative knowledge of such. The recognition of the efficient cause

of the several symptoms, and of the relations of these to the anatomical structures affected by such cause exemplifies the rise to the dignity of a science.

“Knowledge is Power:” but what of half-knowledge?

Microscopic discovery of an otherwise invisible parasite has enabled the practitioner to administer the remedies applicable to arrest or annihilate the cause of a direful malady; such knowledge gives also that of the stage beyond which there is no direct or specific remedy. In such phase of medicine, he can act with confidence and prophesy with certainty. Finally, I would refer to another test which, by the analogy of established sciences, bears upon my present subject.

When chemistry was struggling to its goal, a mockery disguised in its rags obtained the confidence of a majority under the name of alchemy. It was long ere the professors of this pseudo-science lost the patronage of the rich and great, on whose credulity they battered. The extinction of the transmuters is an evidence, small, indeed, but significative, of the true and trustworthy status of the branch of experimental research to which the gifted, single-minded men devoted themselves, to raise chemistry to the status of a science.

Prior to, and for some time after, the promulgation of the Copernican theory, astrology continued to hold its ground against astronomy. The “caster of nativities” was patronised by monarchs, ministers, men of wealth, and lords of fair estates long after the periods disgraced by the persecution of Galileo, and by the cold neglect of Kepler. Finally, arose a Newton; and to the higher evidences of a “science of the stars,” I may here add the lower one of the extinction of astrology or its relegation to some obscure almanac.

Are there, then, we may ask, at the present date, practitioners, professors of curative methods, analogous, in medicine, to the astrologers and alchemists at former periods of astronomy and chemistry? Do they, in like manner, obtain countenance and support, as did those empirics from prime ministers and non-scientific people of rank and fortune.

In the degree in which the unlicensed Dentist, the bone-setter, the mesmeriser, and homœopathist may flourish or

get means of subsistence, may be estimated, in some degree, the stage at which inductive medicine has reached on its rapidly advancing career to the status of a science.

CASE OF ABSCESS OF THE ANTRUM WITH NECROSIS.

By T. G. H. NICHOLSON, Liverpool.

DEEMING the following case somewhat unusual, it has occurred to me that a statement of it might afford subject of interest to the Dental profession :

Called upon by a medical friend to see a case he had in charge, I found the patient suffering from severe constitutional disturbance, the effect of prolonged suppuration at the root of the first right upper molar tooth, with subsequent extension to the cavity of the antrum of Highmore. It appeared upon inquiry into the history of the case that for a toothache the individual had sought the aid of a Dentist with a view to the extraction of the offending member ; his intention, however, had been overruled in favour of stopping, and to this operation, performed upon an exposed and inflamed pulp, was due the disastrous result shown in the accompanying sketches from a photograph.

It seems that after having the cavity filled the pain, already acute, became gradually more and more intense, until on the fourth day there was an enormous swelling of the cheek, with complete occlusion of the eye of the affected side. About this period the molar containing the amalgam filling became so loosened that the patient was himself able to extract it without difficulty, but though followed by some amount of hæmorrhage from the highly hyperæmic local condition, no perceptible diminution of the swelling resulted, owing probably to the opening being too diminutive to freely evacuate the contents of the cavity above ; and here it is needful to say that the patient admittedly erred in not at

this stage of the case calling in medical aid, but in ignorance allowed the accumulated pus to burrow and find an exit wherever it could, this being in part through the nares, but mainly around the necks of the teeth as far forward as the central incisor. Extraction of the bicuspid and enlargement of the opening into the antrum had now little if any effect in arresting the destructive process, though my colleague for



FIG. 1.—Alveolar border.

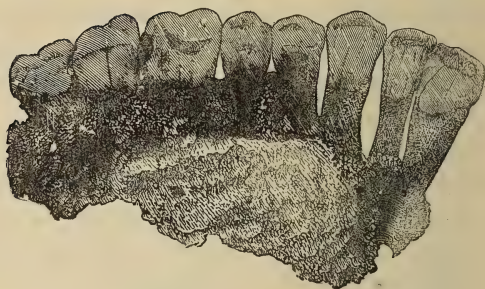


FIG. 2.—Palate portion.

a time was of opinion that suitable remedies might still result in a partial salvation of bony tissue, and with this end in view continued for a while longer the constitutional treatment, to which, so ably and rightly directed, the patient doubtless owed it that pyæmia did not supervene. For my own part I was less sanguine, seeing that the alveolar ridge, with a considerable portion of the palate process of the superior maxillary bone was movable (the puckered-up mucous membrane clearly shewing that it was more or less detached), furthermore, on account of the horrible fœtor and vitiated atmosphere surrounding the patient its speedy

removal seemed imperatively called for ; however, it was decided to postpone it awhile, when I was again consulted, my colleague, in the interim, concurring with my view of the case. At his request, therefore, I proceeded to remove the sequestrum, which still retained such an extent of periosteal adhesion as to render its further separation with a scalpel necessary, the better to enable me to obtain a firm grip of the alveolar ridge and exert the requisite degree of traction. It will be seen that the separation has taken place in an irregular direction from the anterior palatine foramen or middle line to a point corresponding with the interspace between the second molar and *dens sapientiæ*. The latter, while still possessing a tolerably firm attachment at its posterior aspect, was on its anterior surface so denuded of alveolus and periosteum as to raise a question in my mind whether it was not advisable, having regard to the future comfort of the patient, to remove it, on the ground—1st, that, as a point of attachment for a mechanical appliance, it would be of little if any use, its stability having been compromised in the manner mentioned ; 2ndly, that used as a check, the contact of a metal or vulcanite piece, with or without a band, would fret and irritate it into a condition that would almost certainly necessitate its ultimate removal ; 3rdly, that stripped on one side entirely of osseous and fleshy connections it was exposed to every description of irritant that the taking of food could suggest ; 4thly, to obviate the possibility of annoyance, with the tooth on the one hand, or the operator on the other, for what might hereafter come to be looked upon as a stupid omission, I decided, with the consent of the patient and his medical adviser, to extract it ; when, in place of the usual rounded cone, the root presented a broadly flattened surface, which imparted to it a firmer degree of attachment than was expected, unsupported as it was anteriorly ; indeed so firmly adherent was it, that the remaining portion of alveolus was brought away, a circumstance in itself of no special moment, except as rendering the operation severer than it otherwise would have been. The condition of things presented subsequently, and which called for mechanical aid, may be briefly put as follows :—The soft structures entering

into the formation of the hard palate, and the contiguous mucous membrane of the antrum, having lost their intervening osseous layer, are consequently in contact, that of the palate puckering up towards the centre. Some discharge of pus continuing to be secreted from the lining membrane of the antrum for a time gave rise to a fear lest the turbinated bones might be involved; so by way of determining the point a bent probe was passed carefully into the cavity through the membranous opening already established by ulceration, but failed to detect that such was the case. Advantage was, however, taken of it to inject a stimulating lotion, which, finding its way through the antral foramen of the middle turbinated bone, escaped through the anterior and posterior nares. A few applications had the desired effect of restoring the part to its former healthy condition. Owing to the fibrous character of the soft parts, union by granulation was not to be obtained, but as soon as the general condition of the mouth permitted I took an impression and worked to the model a temporary block suction plate in vulcanite, the pressure of which the patient is able to bear without inconvenience. By a mechanical manœuvre adopted in the construction of the palatal surface of the temporary piece just mentioned, it is anticipated that the mucous membrane of the alveolar border, together with that of the palate, will be approximated so nearly that the success of the contemplated permanent plate may be looked upon as assured. Having stated as the duration of the case that it covered a period dating from the 6th of January to about the 16th of May, I shall have described it, I presume, as far as it is likely to interest your readers, and will only further trespass on your space to the extent of acknowledging my indebtedness to my colleague for the interesting morbid specimen I have secured, and to add that the original may be seen by any member of the profession who may desire to do so.

9, Canning Street, Liverpool.

EVIDENCE OF REFLEX ACTION IN RELATION TO
CONSTITUTIONAL DISTURBANCE INDUCED BY
SECOND DENTITION AND COMING UNDER THE
PERSONAL OBSERVATION OF THE AUTHOR.*

By DANIEL CORBETT, M.R.C.S.E., L.D.S. Dublin.

IT is with no small amount of diffidence and hesitation that I venture on the introduction of a subject, so complex in its nature, and at times so difficult of comprehension, as reflex action; but, in the present age of medical and physical elucidation, an obligation rests with every man, to contribute his quota of information and experience in order to secure a result valuable and of benefit to the community at large. It is, then, in the capacity of a humble contributor of personal experience that I appear before you, not as a theorist introducing a novelty, and anxious to defend it. I come to seek information myself on a subject in which I take deep interest, and as an "Alumnus," before the Sectional Senate of—what I may be permitted to regard the Congress now assembled in this city to be—the Medical University of the World.

It is not necessary for me to enlarge upon the various instances and phases of reflex action which occur in medical practice, and are observable every day; my duty is clear and definable, intimately associated with our specialty as Dental surgeons, and my intention and object on this occasion is to prove that cases arise in medical practice where the physician, if he means to act conscientiously and with benefit to his patient, cannot afford to ignore the advice and services of the Dental surgeon.

For some years reflex action in connection with the teeth has been to me a constant source of study and observation; and during the lifetime of my friend, the late Dr. Hudson, I had several opportunities, through his kindness, of proving the truth of my diagnosis of cases occurring in his practice,

* Read before the Section of Diseases of the Teeth of the International Medical Congress on August 4th, 1881.

where the symptoms to be combated were anomalous and inexplicable, according to received doctrine and authority.

Reflex action as a phenomenon is perhaps more frequently observable in youth than in mature age; at least, such has been my experience, but, practising a specialty, I may be excused if I be inaccurate in my statement. This fact, however, I do maintain, that the period of secondary dentition is replete in many instances with evidence to prove the importance of my view. In calling your attention to the anatomical relations of the fifth pair of cerebral nerves I must apologise, but believing that the proceedings of this meeting will be anxiously scanned by the youth of the profession, and thereby be the medium of instruction, I consider I am justified in the course I pursue as best calculated to diminish the labour of study, and the more readily explain what might appear inexplicable.

The first important connection of the fifth cranial nerve with the sympathetic is observable, as you are aware, with the Gasserian ganglion, the first division of which, the ophthalmic, as it enters the foramen laceum, receives some sympathetic filaments; it then divides into three branches, the lachrymal, frontal, and nasal. I wish you to remember this particular relationship, as it bears strongly upon the first case I shall allude to. You will recollect I only undertake to give you personal observations of phenomena occurring in my own practice.

CASE 1.—Some years since, the late Dr. Strong called upon me with reference to a case of, to him, much perplexity. Miss T—, a young girl, aged fifteen, of nervo-sanguine temperament, but healthy in every particular, was subject to copious lachrymation on each occasion that she left the house for out-door exercise. There was no outward manifestation of organic disease, the eyes looking brilliant and healthy. Still, the moment she went into the open air, the tears poured down her cheeks in a most distressing manner. Dr. Strong tried every plan he could think of to overcome the affection, but without any beneficial result. Consultations were held with several medical men in vain as regards improvement. After several months of suffering,

the case was brought under my notice to ascertain if the teeth could in any way influence the condition of affairs. On examination I found the cuspidati of the upper jaw absent, although the dental arch was perfect. Understanding that no teeth had ever been extracted from the child, I at once removed the first bicuspid on each side; within one week a manifest improvement was observable, within three months all inconvenience had passed away, and the cuspidati had made their appearance. I have seen this case within the last year, and can vouch for the perfect regularity of the dental arch.

CASE 2.—Mrs. A—called upon me relative to her ward, a little girl, aged thirteen years, of weak intellect from infancy, but docile and tractable until the period of her second dentition, when a marked change was observable in her conduct and disposition. She became at times violent and subject to paroxysmal attacks, in which she would run about the room biting at everything within her reach, chairs, tables, door handles; in the street she would run off from her attendant, and attempt to bite the lamp-posts. Her teeth appearing to require attention, the child was brought to me for advice by her guardian, who stated that if it should be necessary to remove any teeth I must be prepared for unusual resistance on the child's part, and must act accordingly. I found the lower incisors overlapping each other, and the cuspidati pressed forward in a most unbecoming manner. I at once removed the first bicuspid on each side, and directed that the child should be brought to me after one month's interval. This was done, when I learned that though no improvement had been observed in her mental condition, the biting propensity had completely disappeared.

CASE 3.—Dr. R—called upon me with reference to some artificial teeth he required. At a subsequent visit he incidentally mentioned, as a source of great anxiety to him, the state of his daughter's health, aged seventeen years, which he described as follows:—Nothing unusual in her condition had been observed since birth, until within a period of two years, when weakness of the lower extremities showed itself,

accompanied by occasional impairment of vision. This state of things gradually became worse, until the power of progression was quite lost unless when assisted, and there was complete loss of vision when she assumed the erect from the sitting posture, though in the latter she could distinctly see large objects. As her condition had resisted every description of treatment, I asked her father to let me examine her mouth, to which, in consultation with her medical attendant, he consented. I found the dental arch of the lower jaw complete as to number, the "*dentes sapientiæ*" only partially erupted, the circumference and superior aspect fully exposed, but still giving unmistakable evidence of severe pressure against the second molars to the extent of slight lateral displacement outwards. I extracted the second molar on each side, and within one week a slight improvement was observed, which gradually increased until three months had passed, when every iota of constitutional disturbance save one, *i.e.* the power of vision in the right eye, was lost. She is now in the enjoyment of the most perfect and robust health. I have seen this young lady within the last few days, and have had from her an expression of gratitude for the service I had rendered her.

To account for these results I confess I feel tempted to plunge into the vortex of pathological research, upon the surface of which I see floating the idea that in the connection of the sentient fifth nerve with the sympathetic there may be a recurrent stream of nervous influence flowing, which, as it were, by inoculating the whole sympathetic system, would account for the exhibition of those very anomalous symptoms observable in parts of the human organism remote from the primary source of irritation. Further investigation in this direction I must leave to the enlightened and ambitious youth of our profession. For myself, I acknowledge that my numerous avocations still press heavily on my time, and, with accumulating years, I feel my duties a greater tax upon my mental and physical energy. I fear I have trespassed too long upon your patience and forbearance, but I trust sufficient interest may be found in the communication I have laid before you to plead my excuse.

ON ALVEOLAR ABSCESS.*

By Dr. DEAN, Chicago.

I do not apply the term "alveolar abscess" to any lesion except that associated with a tooth the pulp of which has become devitalised, no matter whether the devitalisation is of recent or of remote occurrence. In other words, the death of the pulp is regarded as the remote or indirect cause of the disease. The immediate or exciting causes of alveolar abscess are the various matters and the products of the various matters which find their way from the root canal through the apical foramen. These irritating agents rise from the decomposition of the pulp tissue, or from the exudations that may have entered the canal from the apical foramen, or from matters that may have entered the root canal from external sources, or indeed, in some cases, from the passage of liquids or gases from the dentine or cementum of the roots. Any of these agents acting either mechanically or septicly upon the tissue surrounding the root will cause inflammation, and, as a consequence, may terminate in alveolar abscess. Some cases of the disease are regarded by many writers as incurable, and unfortunately are treated as such by practitioners. Those cases with fistular outlets are the least difficult to treat. Taking, as an illustrative case, a fistulous abscess associated with a superior bicuspid having a large cavity on its distal surface, the gums being somewhat inflamed and turgid, the first step in the treatment, whether the abscess be acute or chronic, consists in adjusting the rubber dam to this and the adjacent teeth. The decayed parts should then be removed and a convenient entrance made into the root canal, which should be enlarged if necessary with a gauge drill or other suitable instrument, and thoroughly cleansed. A steel broach should then be passed gently through the apical foramen to remove any obstruction to the passage of

* Abstract of a paper read in the Section of Diseases of the Teeth of the International Medical Congress on August 6th, 1881.

liquids. The next process consists in the injection of creasote through the apical foramen into the abscess. This operation should not be discontinued until the whitened orifice of the fistula gives evidence that the remedy has reached this point. The injection of the fistulous track having been accomplished, the root canals may be filled tightly with cotton slightly moistened with creasote, and the cavity of decay sealed up to prevent the entrance of the fluids of the mouth. No additional treatment will be necessary in the majority of cases to effect a permanent cure. In five or six days, when the fistula is found closed, the pulp canal should be completely filled with some durable and impervious material. But before the temporary stopping is removed, the rubber dam should again be applied to the tooth in order to prevent the possibility of any contaminating matter entering the root canals. No matter how badly broken down the crown of the tooth may be, or however swollen the surrounding parts, an alveolar abscess of the character just described will, as a rule, yield to the treatment above indicated.

In the treatment of teeth anterior to the bicuspid, it is sometimes better to make a direct opening into the canal from the lingual aspect. In other respects the treatment is the same. The treatment applies equally well to abscessed roots upon which artificial crowns are to be secured. The treatment of fistular abscesses which are associated with the molar teeth is somewhat more complicated, inasmuch as it is more difficult to obtain free access to the root canals. Abscesses not having fistulous outlets, and therefore sometimes called blind abscesses, yield readily to treatment, but require more cautious management. After the operation of cleansing the cavity and the root canals is completed, a broach should be passed through the foramen if the pus does not already flow. The pus and serum which follow the withdrawal of the instrument should be wiped out until they cease to flow. Then a piston should be made by winding cotton fibres around a suitable instrument and saturating it with eucalyptus oil or some other substance. With this as much as possible should be forced or pumped from the

abscess. Of course the cotton should be renewed many times. By this means the remedial agent will be forced through the foramen and drawn out again, bringing with it a mixture of purulent matter. By repeating this operation several times nearly all the contents of the sac will be removed. After the contents of the cavity are measurably exhausted, a little creasote may be injected into the abscess and the root canal filled with a pledget of cotton, and the cavity sealed up. On the second or third day the temporary stopping and dressing of the canal should be removed. If pus should be found in the meshes of the cotton, or if serous fluid and pus in small quantities should ooze from the apical foramen, or if there has been a leakage through the temporary stopping, the same treatment should be repeated. The second treating will, as a rule, be sufficient to cure the abscess. In cases which may not yield readily to the treatment with creasote or eucalyptus oil, it will be well to substitute aromatic sulphuric acid. The effect of this remedy, though somewhat painful, is often truly wonderful, and one application is frequently sufficient to arrest the further secretion of pus. If there be necrosis of the osseous parts, the removal of the bone and the substitution of aromatic sulphuric acid will be indicated. This treatment will generally result in a speedy cure.

The author also described a method of treating incipient abscess. Throughout his paper he confined himself almost exclusively to manipulative details, for he believed these to be of the first importance in the treatment of alveolar abscess. He was aware that the method of practice here described was not new to all the members of the profession, nor was it peculiarly his own. He was also aware that other therapeutic remedies and modes of practice would accomplish similar results. He had merely described the methods and the remedies which had proved most satisfactory in his own practice.

THE CAUSES OF CONTRACTION IN AMALGAMS.

By G. SIEDENTAP, Bonn.

THE most various causes have been from time to time advanced by competent observers to account for the contraction of amalgams, yet so far in no case has the avoidance of the presumed cause enabled us to arrive at perfectly satisfactory results. The object which I, a young practitioner, have in view in adding my own opinion to those which have already been expressed on the subject is to elicit a verdict from older and more experienced practitioners, and to arouse a spirit of research.

We daily meet with amalgam fillings which, though inserted by workmen acknowledged to be thoroughly competent, have undergone so much contraction as to provide a lodging for putrefactive products, and so lead to caries at the margins of the filling. This unsatisfactory result of all our trouble has its origin quite as much in faulty preparation of the cavity as in the contraction of the amalgam. It is chiefly fillings on the approximal surfaces of the teeth that require repeated examination and restoring; cavities on the masticating surface and on the buccal and lingual aspects of the teeth need restoration much less frequently. In other words, the cases which are least secure are those in which the file has been used to prepare a V-shaped space to prevent the lodgment of food, and in which consequently a naked layer of dentine has been left. In such cases not only is the filled tooth often for a long time the seat of severe aching, but the occurrence of contraction in the amalgam very frequently exposes the tooth to fresh caries. It follows that we ought to do our best to secure for the margins of a cavity, in those positions which are most exposed to the fluids of the buccal cavity, a healthy layer of enamel, a course which is easy enough in the case of all other cavities except those on the approximal surfaces of the teeth.

Proceeding on this principle I have hitherto prepared

approximal cavities according to the following rules, and always with the best results:—If the cavity is fairly big I prepare a sufficiently large V-shaped space with the enamel chisel and file, and cut away the dentine at the margins, no matter whether healthy or decayed, as far as the enamel. In the case of smaller cavities I attempt to separate the teeth, or to obtain access from the masticatory surface, without using the file. In both cases after excavation I have a cavity, the orifice of which is bounded on all sides by a healthy, resisting layer of enamel.

As regards the preparation of the amalgam, my method of preventing as far as possible any subsequent contraction consists in a thorough pressing out of the mercury—a proceeding for which I may advance the following theoretical reasons:—Thorough amalgamation does not take place immediately after mixing the quicksilver with the filings, but only gradually in the course of years. Amalgamation is more or less intimate according to the amount of mercury used. In every amalgam the molecules undergo a change in position, the yielding taking place from the centre of the mass outwards. From these principles it follows that, since the thoroughness of the amalgamation depends on the amount of quicksilver used the least intimate amalgamation occurs when only just so much mercury is retained as is absolutely necessary, *i.e.* when all superfluous mercury has been pressed out. For the change in the position of the molecules, in other words, the contraction of the amalgam, is least marked where the amalgamation is most incomplete, *i.e.* when the mass contains least mercury.

Having assumed the above causes of contraction, I have made it a practice to place the amalgam between folds of leather, and to press out the mercury with a strong pair of pincers. By this method, and by preparing the cavity as described above, I have achieved uniformly good results. I have found that either contraction has not occurred at all, or it has been so slight as to have no evil consequences, inasmuch as the carious process finds no point to attack except amalgam and a hard healthy layer of enamel, and hence can make no progress.

What are the metals which need the least amount of quicksilver to form amalgams is a question on which further researches are required before we can give a satisfactory answer. According to my experience copper amalgam does not undergo contraction at all.—*Vierteljahrsschrift für Zahnheilkunde.*

Hospital Reports and Case-Book.

A NEW DENTAL DISEASE.

By N. STEVENSON, M.R.C.S., L.D.S.

A CHILD, aged 10, whose teeth six months ago appeared to be all perfectly sound, came to me with toothache in the right lower canine. I found that a large portion of the enamel had disappeared from the front surface of the tooth, as if it had been chipped violently off; the dentine was all exposed, but there was no softening nor appearance of decay. The disease, which has commenced in several of the other incisor teeth, appears first as a small white spot in about the thickest part of the front surface of the enamel, which it seems to penetrate; and then, suddenly disintegrating, this comes away, and exposes the remaining sensitive enamel and the dentine. This disease is altogether a different thing from the gradual decay or wear at the neck of the teeth, frequently met with in adults, for in this case the patient is only ten; and, as far as I have been able to ascertain, the incisors and canines never have been known to decay in the manner above described. We are often at our wit's end to cope with the increasing prevalence of caries in the teeth of the very young; and if this be (as I fear it is) a new form of destructive energy, the sooner it is recognised the better.—*British Medical Journal.*

British Journal of Dental Science.

LONDON, SEPTEMBER 1, 1881.

ADVERTISERS AND ADVERTISING.

WHEN Beethoven composed his Pastoral Symphony he said that it was his object not so much to give a musical description of pastoral life as to express the feelings aroused by it. If we may trust our memory he described his aim as “mehr Empfindung als Malerei”—feeling rather than delineation. Some such phrase may well apply to one’s mode of thought about advertising. It is much easier to feel than to describe what is legitimate and what is illegitimate advertisement. The assignment of the line between honour and dishonour in advertising is an act in which, for reasons which we shall shortly give, one will more safely follow one’s instinct than one’s reason. The reader will perhaps take exception to such terms as “honour in advertising,” “legitimate advertising;” but it is obvious that talent must have some recognised means of making itself known to the world, or it would lose one of its chief incentives, and every profession would become a dead level of work, followed without heart and remunerated without discrimination. That may be the socialists’ ideal, but it is not nature’s. Nature who has given the pheasant his burnished hues, and swift flight to the kestrel, meant no man to hide his light under a bushel or to wrap his talent in a napkin, sheltering himself under the selfish regulations of a guild or a State from the all-pervading struggle for survival. It is for the individual good as it is for the good of the community that each man’s power should be known for what it is and should be rewarded in proportion.

Thus, every method which men have devised for making themselves known to the world is in a certain sense an

advertisement. The man who in doing the best for his patients is encouraged by the feeling that as the goodness of his work is recognised so will the demand for it increase, is in some sort an advertiser. So too is the man who takes part in the meetings of learned societies, and builds up thereby a reputation amongst his fellows. So too the man who writes a book, to benefit, not his enemy, but himself. These methods are recognised by the standard morality of all professions as perfectly legitimate means of advertising, and yet it is widely admitted that they may be with ease converted into illegitimate means, and be pressed into the service of the pretender and the charlatan. Thus even here it is impossible to draw a hard-and-fast line between the legitimate and the illegitimate. Each case must be judged on its own merits, and each must be referred rather to the touchstone of instinct than to the discrimination of reason. Each profession as it becomes more and more organised, and takes a higher and higher place in social standing, cultivates a corporate conscience, the strictness and delicacy of which will be found in direct ratio to the general esteem in which the profession as such is held. In each of the old-established professions the more highly cultivated minds shrink from the merest suspicion of advertising as from the defilement of pitch, and amongst the higher grades of the sister profession of medicine clean hands are more honoured than clever ones, and honesty is a safer passport to professional esteem than industry or talent.

Our own profession has not the long pedigree of the College of Physicians, and our corporate conscience is as yet in an embryonic condition. But the day will doubtless come when the Dentist of every grade will shrink, as it were, by instinct, not only from illegitimate methods of advertising, but even from the illegitimate use of legitimate methods. The time will come when the profession will as much scout the parading of aristocratic patients in scientific papers as its better minds now scout the red lamp, the show-case, and the published scale of charges. But till this happy consummation is attained it behoves all of us, and most especially those who are in the high places of the profession, to

be most careful be avoid the slightest breath of suspicion. It is mere hypocrisy to decry in pompous phrase the poor artifices of the struggling Dentist, who puts forward his humble show-case in some dark alley, while men with diplomas and degrees boldly divert the organised forces of literature and science to their own selfish ends. Deal tenderly if you like with the uneducated and uncultured man who has not yet unlearned the tricks of trade, but expurgate with all the banded forces of associations and societies those who having presumably received the training of a *savant* and the education of a gentleman use their title and their position to degrade their calling and make it stink in the nostrils of other professions. Well may the owner of the red lamp say to some of these assuming teachers—

“Do not, as some ungracious pastors do,
Show me the steep and thorny way to heaven,
Whilst, like a puffed and reckless libertine,
Himself the primrose path of dalliance treads,
And recks not his own rede.”

We have said above that it is often a difficult task to discriminate between legitimate and illegitimate advertising, if one trusts entirely to one's own reasoning, and does not rely on that inherited sense of what is right and honourable, which is not the product of one man's experience only, but is the distilled essence of the reasoning and experience of generations. A case in point has recently been perplexing many of our correspondents, and we wish to state it and to consider it with all possible fairness. Two American Dentists having devised certain improvements in operative and mechanical Dentistry propose to come to London, and to devote a week to practical teaching in these two branches. The fee for the course is five pounds, and those who intend to join it are requested to send their names to a well-known London hotel. That is advertising certainly. The question is, whether it is legitimate or illegitimate advertising. Under other conditions of time and place we can conceive that such an announcement would shock nobody. It would have been perfectly legitimate a century or more ago, when there was no organised special teaching; it may, perhaps, seem

legitimate to the American conscience. But to us here in England and in the present century it is as perplexing as it is novel. We have well-developed special institutions, we have a scientific society which holds its head proudly amongst other Dental societies, we have practitioners amongst us who from the scientific standpoint are pre-eminent, and we are not aware that our average practical skill is less reliable, though it may be less showy, than that of other nations. We are not so self-opinionated as not to be willing to learn from others, and we have recently extended ample facilities to those who thought they had anything new to teach. But we candidly confess we do not like this new custom which is invading us from the other side of the Atlantic. It may be that we are foolish sticklers for the older methods, and absurdly in love with professional humility. But we confess again we do not like it; it makes us shudder. It may be that we shall in time be reasoned into forbearance, but not till the Stars and Stripes float over Buckingham Palace, not till American is talked at Westminster, and the Dentist shall hobnob with the Duke, will our sense of professional propriety cease to rebel against this novel form of advertisement.

WE were wrong in our last number in describing the Report of the Secretary of the British Dental Association as being of a satisfactory nature. Mr. Turner would be himself the first to take exception to such a description. Until the recent accession of the Western Counties Branch, the British Dental Association only numbered 412 members out of some 2000 or more Dentists who, at the lowest estimate, may be assumed to be eligible for membership. That is certainly not a very encouraging result. We are anxious that the Association should succeed and become a body of which British Dentistry may be proud. But if it continues to adhere to its present policy it will be years before it attains the numerical strength which would alone entitle it to a representative position.

A SOCIETY, like the Odontological, can afford to be exclusive, but with an association it is a different matter. Representing, as it does, the political and social, as well as the scientific, interests of the profession, its only logical basis is a democratic one, and unless it can succeed in securing the sympathy and support of the main body of the profession, it becomes *ipso facto* a failure. For any one with an unprejudiced mind it is easy to see why the British Dental Association is a failure. Instead of quietly and unobtrusively fostering the strength and self-respect of the profession, it has thrown itself with all its forces into a struggle which has not the general sympathy of the Dental body. The wish to expurgate the Register is, to put it plainly, the craze of an oligarchy, not the earnest desire of the many. Surely the profession ought not to be treated like a child, and purged whether it will or not.

MR. TOMES believes that "success, if rightful, will follow the exercise of patience, perseverance, and forbearance—not, however, if the latter word is interpreted as meaning indifference." The profession is not indifferent, in spite of Mr. Tomes's scolding, but in this case it manifests a truer political judgment than its leaders.

A LETTER which appeared in our last issue, accusing Irish licentiates of omitting the all-important "I" in describing their diploma, has elicited many replies, which we regret we are unable to publish. All of them indignantly plead not guilty, and some in addition plead justification. We have no wish to open our columns to mutual recriminations, and, having impartially heard the two sides, must content ourselves with expressing our own feeling on the question, after which we hope to be allowed to let the matter drop. We do not think there is any widespread wish on the part of the Irish licentiates to conceal the origin of their diploma, but we do not think those who practise on English soil are wise if they omit the qualifying letter. At the same

time, we cannot see that there is any obligation on their part to add it. The M.D. Lond., or Cantab., does not complain because other practitioners simply write M.D. after their name. He is secure in his strength. So with the Dental licentiates, the omission of the qualifying initial should be regarded rather as an admission of weakness than as arguing a desire to assume a virtue they do not possess.

THE list of new Irish licentiates which we published in a recent issue was, we are told, far from correct. Not content with omitting the names of two gentlemen who were rightly entitled to appear in it, we conferred diplomas on two other gentlemen who, it appears, did *not* satisfy the examiners. We have gladly corrected the two omissions, but we need hardly say that we cannot take upon ourselves the invidious task of publishing the names of the two latter gentlemen without due authorisation.

WE have other sins to acknowledge. Somehow the well-known name of Dr. Dentz, of Utrecht, was wrongly spelt in our report of the Medical Congress; and our statement as to the practice of the late Mr. Isaac Sheffield has turned out incorrect, Mr. Charles Heath having succeeded to it instead of the gentleman we named. For some of our errors we may plead the hurry of the Congress week, which appears to have had a very baneful influence on the accuracy of others besides ourselves. The supplementary list of members of the Congress was a marvel of misspelling, while every journal but this seems to have gone wrong over the name of Dr. Joseph Iszlai. But one may be easily pardoned for not knowing that funny custom of the Magyars which puts the Christian name last.

APROPOS of the Congress we have culled from a provincial paper an anecdote which is too good to be lost. Some of

the foreign members were discussing whether to go to the *conversazione* at the College of Surgeons in morning or evening costume, when Professor Charcot—the Sir William Gull of Paris—was heard to observe “Ah, as for me, I shall go in my night dress.”

A NEW use has been found for dentine. In the course some microphotographic demonstrations which he gave at King's College to a limited audience, Professor Koch showed how the peculiar structure of dentine could be used to separate different kinds of bacteria. Each dentinal tube will only admit a single bacterium, which once admitted closes the orifice against the invasion of other kinds, whilst it proliferates itself along the tube. Each kind is thus found to reproduce its own variety and that alone; and Dr. Koch showed a specimen in which several different varieties of bacteria were seen occupying adjacent tubes. The best account of Dr. Koch's demonstrations will be found in the ‘Medical Times and Gazette’ for the 20th ult.; but the special experiment described above is unfortunately omitted.

IN the anatomical section of the Congress, Professor Kölliker read a communication from his son, Dr. Th. Kölliker, on the Development of the Intermaxillary Bone, the main points of which had already been incorporated in our leader on the subject in a recent issue.

WE have been favoured by Herr Schlenker, of St. Galle, with some most interesting microphotographs representing cavities in bone substance. He was unfortunately prevented from reading his paper on the subject, as he had intended, at the Heidelberg meeting of the German Dental Association, and its publication is postponed to some future occasion. In the meantime Herr Schlenker is continuing his researches on the subject in connection with the higher

mammalia, and we hope sooner or later to have the pleasure of publishing the results.

THE 'British Medical Journal' records a death from ether at the Seamen's Hospital. The patient was a negro, aged forty-five, and the ether was given in order to reduce a hernia. Anæsthesia was kept up for about a quarter of an hour, two and a half ounces of ether being consumed. The pulse and breathing stopped about two minutes after the inhaler had been removed, and all efforts to restore them were fruitless. The post-mortem revealed dilatation of the heart, but no disease of the valves.

WE recently called attention to the dangers attending the indiscriminate use of chlorate of potash. According to an article published by M. Züber in the 'Gazette Hebdomadaire,' thirty cases of poisoning by this drug are on record, twenty-three of which proved fatal. The symptoms are jaundice, with hæmorrhagic extravasations, albuminous urine, depositing a highly pigmented sediment, fever, dyspnœa, and nervous disturbances. After death the blood is found to be dark and fluid, the renal tubules filled with pigment casts, while the spleen and the medulla of the bones are also charged with pigment. It is found that children are extremely susceptible to the influence of the drug, and the practical deduction from the observations of M. Züber is that in young subjects chlorate of potash should be used in small doses, and the greatest care should be taken that gargles containing it are not swallowed. This is a point which Dentists will do well to remember.

The Dental Examiner.

CONTINUOUS GUM WORK.

WE have received a specimen of Mr. A. B. Verrier's Continuous Gum Work and photographs of his Gasoline Injector Furnace. As this gentleman's paper, read at Bristol and published in our issue for August 1st, is now before the public, he may be safely left to describe the process he so ably advocates. Our province in the present instance is more to comment upon the work completed than the method of producing it, for the time occupied in the manufacture of a successful denture can hardly be considered the principal consideration, although Mr. Verrier evidently regards two days in firing a set as a very short time. Every one must allow that teeth mounted in this manner are very beautiful, but the objection urged against continuous gum work remains unaltered; their weight must ever be a drawback excepting for complete lowers, where the very weight is an advantage. Mr. Verrier says in his paper: "I believe the failure proceeds from bad manipulation, imperfect construction, and ill adaptation of the base plates used in this process;" but it must be noted that Mr. Verrier sends us a perfectly constructed upper weighing nearly two and a half ounces, whilst a vulcanite piece of the same size would not turn the scale at one ounce, or a celluloid at three quarters of an ounce. But Mr. Verrier thinks he can overcome this, and remarks that atmospheric plates are not scientifically constructed, and he recommends that two plates should be struck up to the mouth, the one at a small distance from the other, and when these are united by being soldered at the margins a slight space is left between them, so that the patient in wearing may secure the set by exhausting the air, small openings being made in a chamber in the body of the work to convert the space between the plates into a partial vacuum. This is all very pretty in theory, but in practice it falls to the ground. The vacuum made between the plates would

immediately get filled by the liquids of the mouth. You might, it is true, get such an arrangement to act in a perfectly dry mouth when *first inserted*, but the space would in a very few minutes collect fluid, which would put a stop to your vacuum. Mr. Balkwill has in this Journal gone so fully into the construction of suction uppers that we may leave this matter for his consideration.

Gum work would be in the highest way valuable if it could be constructed for partial sets. Every practical man knows how difficult a thing it is to supply the central and the lateral incisors to look natural when the canines are standing and the upper lip is short. Special pieces of gum work for partial cases have been made, but we all know how seldom they can be adjusted. If any one would take this into his consideration and be prepared to supply the profession by constructing specially for them such sectional pieces he might be of great use; in the meantime continuous gum sets, where springs are used, can be strongly recommended, being natural in appearance, cleanly in wear, and not liable to accident.

MR. FLETCHER'S NEW GUTTA-PERCHA FILLING

(continued).

THIS preparation is distinctly different from some of the preparations called gutta-percha for fillings. In the first place its bases appears to be made with great care by dissolving the finest specimens of gutta-percha in the bisulphide of carbon, filtering the solution, and evaporating. Into this is then masticated a certain proportion of the oxysulphate of zinc, which is said to have the power of setting hard under water, so that the longer a filling of this kind is in the tooth the harder it becomes, doing away with that springiness so objectionable in some of these preparations.

It may not be out of place if we dwell for a short time upon the received methods of treating these fillings. To begin with, gutta-percha may be made of any degree of softness, becoming manageable at temperatures ranging from

140° to 230° Fahr., but those that become plastic at about 205° are the more generally useful. To obtain, however, the best results, care should be taken not to overheat them, and perhaps, to be on the safe side, the careful operator had better use Fletcher's hot-water can made for this purpose. There is no doubt about it that overheating, in however small a degree, destroys its permanency, and the flame of a spirit lamp cannot be depended upon. A suitable cavity being formed, the gutta percha should be taken in very small pieces and introduced into the tooth warm. Every piece should be driven up against the wall of the cavity, and when this is entirely lined the central portion placed in position. Should the gutta percha adhere to the plugger the instrument may be touched on an oil-pad. Finishing off is a very simple matter, but it is a very important one, as the material should be flush with the edges of the cavity and made perfectly smooth. We have an objection to wiping out cavities with copal ether varnish, as the filling, if properly managed, can be made to adhere to the dry walls of the cavity, particularly to large ones having thin frail walls.

In our next issue we hope to have the opportunity of saying something about plastic fillings generally, old as well as new, with some special remarks upon those most generally employed.

[NOTE.—Dental materials or appliances intended for notice in the "Dental Examiner," should be sent to the Editor at 11, New Burlington Street, W.]

Review.

Manual of Dental Surgery and Pathology. By ALFRED COLEMAN, L.R.C.P., F.R.C.S. Exam., L.D.S., &c. Smith, Elder & Co. 1881.

[FIRST ARTICLE.]

No one who is at all conversant with the Dental literature of the last five-and-twenty years can fail to be familiar with

the name and publications of Mr. Alfred Coleman, and those who have had the privilege of his personal intimacy will know well what sort of work to expect from his pen. They will anticipate above all things a *practical* work, one dealing perhaps less with those rare diseases and deformities to which the mouth and its contents are subject, than with the matters of daily practice which constitute by far the most important part in the rôle of the Dental practitioner. In the Manual before us such expectations have been fully realised, for though the rarer diseases are by no means omitted, they form but a subordinate part of the book. When Mr. Tomes wrote his work on 'Dental Surgery,' human Dental Anatomy was very imperfectly known, and as it was obviously necessary that an accurate idea of the structure and development of the normal tissues should be obtained before inquiring into their pathology, a great part of his book was devoted to this subject. Mr. Salter's book, on the other hand, never professed to be a systematical treatise upon Dental Surgery and Pathology, but rather a series of papers the outcome of wide experience and careful observation. Mr. Coleman, taking a middle course, aims both at conciseness and completeness, and puts forward his work as a text-book on Dental Surgery proper, the aim of which is to give the Dental student an accurate and systematic view of the subject, without perplexing those who, like the general medical student, do not require so extensive a knowledge of the other branches of Dental literature.

The book is well bound, the printing good, and the type clear; it is abundantly—almost too abundantly—illustrated, some of the illustrations seeming to us almost superfluous; as, for instance, the pestle and mortar figured on page 132. At the same time we must in justice remember that the book is intended for the beginner as well as for the more advanced student. It is written throughout in a very interesting style, and the author has expressed his views with remarkable clearness, while he has been most careful, almost, in fact, gone out of the way sometimes, to give every one his due; and where any plan of treatment cannot be considered so to speak, common property, he has, if possible (unless it be original), inserted the name of its promoter.

In the chapter with which the book opens, headed the "First Dentition," Mr. Coleman gives some very clear directions as to the treatment of children throughout the period of teething. Speaking on the much-debated question of the advisability of lancing the gums, he gives it as his opinion that there is danger in the present day of undervaluing the advantages of the operation, and maintains that if there is the smallest evidence for believing that the nervous system is affected "the gum-lancet should be freely used, as little harm can be done by incising, though unnecessarily, healthy gum compared with the mischief that may result from overlooking this cause of infantile convulsions." At the same time those symptoms are plainly set forth which would contraindicate its use. In the chapter on the "Irregularities and Diseases of the Temporary Teeth" Mr. Coleman gives a probable explanation of the means by which that most obscure process, the eruption of the teeth, is effected. He considers it to be due "to the general growth and advancement of the bone towards the surface, carrying with it the contained teeth." He thinks that in bone, as in epithelium and cartilage, there is a continuous development and advancement of cells from the nutrient centres to the circumference; if this be so, then evidently the tooth developed deep down in the substance of the maxilla is carried upwards by these "bone currents" until its progress is checked by the opposing teeth of the other jaw, the bone in the meanwhile becoming absorbed as it reaches the surface. This process, though most active in the young subject, does not entirely cease in after-life, and in this way Mr. Coleman explains the casting off of stumps of teeth from the surface of the gum, and also the frequent elongation in their sockets of those teeth which have lost their opponents. We cannot but admire this ingenious explanation of the process as regards man, but we do not quite see how it applies to the eruption of the teeth in the lower animals. In some of the snakes, for instance, the "bone currents" must travel in very various directions, if they are to be accountable for the distance travelled and the positions assumed by the teeth previous to their eruption and fixation; but

perhaps Mr. Coleman would say that the cases are not parallel.

Coming to the extraction of teeth for regulating purposes, Mr. Coleman holds some decided views as regards the time for their removal. He strongly deprecates operating too early, and though no hard-and-fast rule can be laid down on the subject, he would wait until the eruption of the second permanent molars, for this reason:—That if extracted before those teeth were cut the developing molars, which have always a forward tendency, would more or less fill up the space that had been gained. On the same grounds the author strongly objects to the removal of the temporary incisors and canines to make room for the permanent incisors. In the chapter on “Caries,” Mr. Coleman dips pretty extensively into the past and present literature of the disease, giving short and concise accounts of the more important theories which have been put forward to explain its nature. The author himself leans towards the chemico-vital theory. He says that the teeth in the mouth, like other parts of the body, are continually exposed to such conditions that but for a prevailing something, which has been vaguely termed vital force, “which, if actually a force, is probably not more distinct from the chemical than the latter is from the electrical,” they would break up into their simpler elements, that is, they would undergo degenerative changes. If, then, from the retention of particles of food and mucus within the mouth, aided by the imperfect development of the enamel, this so-called force is overcome, decay and decomposition ensue. Mr. Coleman also enters upon the question as to the effects of civilisation upon the teeth. It is very carefully worked out, and we only regret that want of space prevents us from dwelling upon it.

ERRATUM.—The list of new Irish Dental licentiates, published in our issue of August 1st, should have included the name of John Granville Turle (Tottenham), and the name of Thomas N. Ritson (Swansea) was wrongly spelt.

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

Wednesday, August 3rd.

THE Section was opened at 2 o'clock by an address from the President, Mr. EDWIN SAUNDERS, which appeared in our last issue. PROFESSOR OWEN, F.R.S., then read a paper "On the Scientific Status of Medicine," which will be found in another column. A vote of thanks to Professor Owen, moved by Dr. Taft, of Cincinnati, and seconded by Mr. Thos. Warner, of Cirencester, was carried by acclamation, and the Section rose.

Thursday, August 4th.

REPLANTATION AND TRANSPLANTATION OF TEETH.

Dr. MAGITÔT (of Paris) addressed the meeting in French on the subject of "The Present Condition of the Operation of Replantation for the Cure of Chronic Alveolar Periostitis of the Apex of the Root." The term "greffe" or grafting, he said, was applied surgically to any operation in which a portion of the body was removed from its attachments, and then replaced either in the same or some different situation. Grafting of skin was a recognised operation, and more recently bone had been similarly treated. The grafting of teeth might be carried out in several different ways. Thus, there was the "greffe par restitution" ("replantation"), in which the tooth was removed and replaced in the same socket either whole or after the removal of a deceased portion. The "greffe par transposition" ("transplantation"), in which the tooth was placed in a different socket from that to which it originally belonged. And then there was the "greffe physiologique," of which Hunter's experiment of inserting the dog's tooth in the cock's comb was a well-known example. He should concern himself on that occasion only with the first class of cases, those of *replantation*. This was a very old operation. It was mentioned by Albucasis and Ambrose Paré, but John Hunter was the first who treated the subject systematically, though it was doubtful if he ever performed the operation himself on the human subject. Amongst some of his contemporaries, however, it attained for a time some popularity, but was soon abandoned owing to the uncertainty of the results. Since then it had been occasionally practised, as by Delabarre (Paris) in 1820, who extracted a tooth on account of abscess and fistula, resected part of the root, and successfully replanted it. In 1853 an army surgeon named Alquié extracted a lower incisor for a soldier who had suffered from a chin fistula for three years. He cut off a portion of the root, replanted it, and the patient was cured in a week. Then, in 1870, Messrs. Coleman and Lyons performed the operation on a small number of cases at St. Bartholomew's Hospital with fair success. To come to his own experience, he had operated on 112 cases during the last six years, and had taken a great deal of trouble in order to keep the patients

under observation. He had drawn up a tabulated statement giving all the important particulars respecting the first hundred of these cases, and he thought that the results thus shown would be sufficient to prove that the operation was a practical one and thoroughly justifiable. The cases to which the operation was applicable were those of chronic periostitis with denudation or necrosis of the summit of the root. On extraction in such cases the tip of the root was found rough and bare of periosteum. This portion was dead, and would eventually be absorbed, and until this dead portion was removed, either naturally or artificially, the tooth could not settle down to a healthy condition. He had in some cases introduced cutting pliers through the sinus in the gum, and removed the necrosed point in this way, but he found the operation an uncertain one, and soon abandoned it in favour of extraction and replantation.

The tables exhibited gave the following particulars :

As to the *sex* of the patients, 70 were men, 30 women.

Age.—Between 10 and 20 years, 17 cases; 20—30, 42; 30—40, 24; 40—50, 14; 50—60, 2; 60—70, 0; 70—80, 1, an old man, who begged to have his tooth restored, and who, to Dr. Magitôt's surprise, proved a success.

Of the teeth affected.—Incisors, 27 upper, 10 lower; canines, 5 upper, 1 lower; bicuspid, 20 upper, 5 lower; molars, 10 upper, 20 lower.

Coexistence of caries.—71 were carious, 29 sound. Some of these had been efficiently stopped. In other cases the stoppings were bad or the teeth had not been stopped at all; 44 teeth thus required filling after extraction.

In 17 cases the periostitis was acute at the time of the operation; 41 had abscess and gingival fistulæ; 5 had fistulæ opening externally; 7 had cysts connected with the root of the tooth; and in 30 there was more or less necrosis of the jaw.

The amount of root removed varied from nothing up to 5 mm., the mean being 2—6 mm.

Duration of treatment.—In the great majority of the cases the patients were quite comfortable in a few days, and discharged cured in 12—15 days, but in some few, especially those complicated by the presence of cysts or necrosis, the treatment lasted for 3 and 4 months. The mean duration of treatment was, however, only 18 days.

Complications during treatment.—In 75 cases there were no complications at all. In 25 there was more or less fever, inflammation, &c.

Duration of cure.—Of the 100 cases 8 been failures. Of the remainder he had 82 still under observation, and all had done well. In the remaining 10 cases the results of the operation had continued perfectly satisfactory up to the time when the patient was last heard of, at periods varying from four months up to two and a half years after the operation. He thought, therefore, that he was justified in claiming 92 per cent. of successful cases, and that his figures showed that the operation was a simple one, easy of performance, rapid, and favorable in its results.

The PRESIDENT having tendered the thanks of the meeting to Dr. Magitôt,

Dr. FINLEY THOMPSON proceeded to read a paper on the subject of "Replantation of Teeth." He remarked that though frequently brought before the Dental profession, this subject did not seem to have been thoroughly investigated by anybody. Yet so many instances of treatment, successful or otherwise, had been recorded

of late as to make its discussion not only permissible, but necessary; and he submitted the following questions for consideration:

1. Shall the system of replanting teeth be a recognised operation in Dentistry?

2. Under what pathological conditions should it be employed?

3. When this method is adopted where the pulp tissue is removed and the canals filled, what percentage of the cases treated are successful?

4. What proportion of cases treated in this manner relapse into abscess and chronic periodontitis, as compared with those treated in the mouth?

5. What advantages, in contradistinction to the disadvantages, may be claimed for replanting?

He proposed, first, to briefly consider the subject of the membrane on which the operation of replantation was wholly dependent for its success, viz. the pericementum. He had prepared three diagrams, the first showing the relationship of the pericementum to its contiguous parts; the second being a transverse section of the jaw and teeth of a cat, showing the bone of the alveolus, the cementum and pericementum highly magnified. It would be seen from this diagram that the protoplasmic bodies or masses of living matter were pretty generally distributed throughout the tissues, and he had endeavoured to represent the connection between the bony structure of the alveolus and the cementum. The third diagram represented a longitudinal section of the human pericementum. The peridental membrane was found to be chiefly composed of white fibrous connective tissue, and had a rich nerve and blood supply. The recorded instances of success in replanting teeth had been perhaps looked upon as evidence of a certain power of nature not practically available, and consequently classed with other curious anomalies in the transposition of tissues; and want of success in operating under incompatible conditions had discouraged some from following to its conclusion a method which, certainly in some instances, had been particularly advantageous. He did not wish to be misunderstood; he contended that the system of replanting should not be introduced in practice save in severe and otherwise hopeless cases. With regard to the physiological action that accompanied the reunion of the tooth with the alveolus, they could only reason from analogy, but the evidence of the existence of a perfect system of connective tissue and protoplasmic cells would suffice for their purpose. The office of protoplasm in the repair of dis severed tissue was so well known that it was only necessary to call attention to the existence of this germinal matter in the periosteum to at once establish a *prima facie* case in favour of the probability of the reunion of a tooth with its socket through the intervention of the alveolar peridental membrane. As could be seen by an examination of the pericementum, there were in the healthy condition of the teeth immense masses of living matter in connection with the various parts entering into its composition. In health these protoplasmic bodies would go through their proper changes and perform their proper functions, but in any departure from a healthy state they were also the principal agents; they were excited to action by an excessive supply of pabulum, which caused them to live faster than they should; they became enlarged, and multiplied to such a degree as to cause a pus formation. In recorded cases it was stated that teeth had been successfully replanted without pericementum upon them, and it might not be without interest if he cited a case where the return of

a tooth to its socket had been delayed for twenty-five hours. During the interval, instead of being kept in a solution of salt water, it was encased in bibulous paper moistened with carbolic water. The tooth after its return appeared to progress favorably for a certain time, but was ultimately lost. It was a question whether the destruction of vital power was due to the length of time the tooth was absent from its socket or to the action of the carbolic water. Dr. Thompson then went on to remark that in successful cases of replanting there was a great difference in the stability of the teeth. In some cases considerable mobility existed, indicating a lax fibrous attachment, in others a fixed condition signified ankylosis. The latter cases usually occurred where drainage had been provided for. The periodontal membrane was affected by the same disease as the periosteum, and that was generally expressed by inflammation. Therefore they had to consider inflammation as connected with reorganisation on which the success of replanting, theoretically at least, depended. Whether the inflammation was acute or chronic the practice of replantation required the removal of all the disintegrated periosteum, and the careful polishing of the cementum. There were two advantages which might be claimed for replanting. In the first place, those who had treated cases of chronic alveolar abscess must at times have experienced the uncertainty of their efforts, and the necessity of a long-continued attendance by the patient. Would not they consider such a case open for the adoption of any more prompt relief? Again, in cases where patients came from a distance, and could not devote time to the treatment, if a satisfactory operation could be performed in a single sitting ought they not to deem it a justifiable proceeding, bearing in mind, of course, that these remarks were only intended to apply to extreme cases. The operation was one which from its very nature must be brought to a quick conclusion. Although between the extraction and the replacement of the tooth in its socket several hours might elapse, no unnecessary time should be wasted. It might be alleged that the severance of the contiguous tissues and disruption of the nutrient vessels was of such a nature as to preclude reunion of the cementum with the alveolus. That the reunion might partake of the nature of a seamed scar he would not attempt to deny, but that it was sufficient to ensure the low vitality sufficient for the tooth was now established by the lapse of years in cases of replanted teeth which were apparently sound and useful to the present day. Restoration of the tooth could also be made where decay extended under the gum with a perfection limited only by the skill of the operator, as his ability would not then be dependent on the endurance of the patient. This advantage, however, was not to bias a practitioner in his treatment of any case, and was not admissible as an argument in favour of replantation. The extraction performed under the influence of nitrous oxide was, of course, painless, and when the manipulation of the tooth was complete gas could be again called into requisition for the only other part of the operation from which any acute pain might arise. Once the tooth was established in position and carefully adjusted nothing more than a few days' pain and uneasiness would be experienced.

Turning to the disadvantages of the operation, in the first place they had to combat the antagonism arising from the mere mention of an operation, which from its peculiar nature was repugnant to the feelings of the patient. Either from lack of information or personal experience, its results were undoubtedly sceptically re-

ceived by the profession. The nutrient structural attachment being ruptured time was required to establish reunion of the parts, and for several days the tooth must be considered the object of constant care by the patient; but it was doubtful whether the pain following replantation was greater than that caused by local applications. The other restraining influence was the uncertainty and the known danger attending the operation.

In considering the percentage of successful cases he would refer briefly to the system of treatment he had adopted. In cases of chronic abscess the decayed portion of the root had been excised and the tooth restored with a gold cap, with the object of preventing absorption. He, however, had had no practical evidence of the result of those cases, and did not ascribe much of the success he had had to the use of the gold cap. To remove inflammatory products, instead of drilling through the alveolus or cutting a gutter along the root, he had been in the habit of fixing a tube in the pulp canal, extending from the apex of the root to the grinding surface. This he considered important in replanting, inasmuch as it permitted of drainage. His experiments had been principally made with persons in the lower walks of life, and consequently he had not been able to follow the results. He had kept a record of cases of replanting which had come under his notice, and out of a total of eighty cases the losses, as far as known, were only eight, five of which arose from non-union, one from imperfect union after three months' retention, and two from abscess recurring. This gave 88 per cent. of successful cases. Of the eight lost five were not tubed; of the other three which were tubed one abscessed again, and the other two were lost from non-union, and he estimated that of the successful cases 50 per cent. were tubed. He wished his own opinion to be distinctly understood. The cases he had undertaken for two reasons. First, because the tooth was so much diseased that satisfactory treatment in the mouth was exceedingly doubtful. Secondly, that he might from his own experimental experience be able to record his failure or success in replanting. Therefore, he reiterated the opinion that the system of replanting should only be adopted in severe or otherwise hopeless cases. The percentage of failures as given by Dr. Magitôt and himself at once showed that in the treatment of chronic abscess replantation was not to be entirely depended upon. In conclusion, Dr. Thompson referred to two cases of transplantation of bone carried out successfully by Mr. C. Macnamara, surgeon to Westminster Hospital. In these operations Mr. Macnamara had been influenced by what he had seen in cases of transplantation of teeth, and one question he (Dr. Thompson) should wish to hear discussed was what points of analogy or of difference there were between the repair in such instances of bone formation as he had referred to and the repair and reattachment which took place between the bone of the alveolus and the cementum in the case of a replanted tooth.

The PRESIDENT said he was sure it was their wish that the best thanks of the Congress be given to Dr. Thompson for his full, fair, and candid exposition of the subject before them.

The SECRETARY (Mr. C. Tomes) said he had been requested by Mr. May to hand round for inspection a tooth which had been the subject of an unsuccessful replantation. The tooth had remained in for eighteen months, and was then removed because it was painful and tender, though not particularly loose, and there was some little suppuration from it. The specimen was chiefly interesting as

showing the large amount of absorption that had taken place in such a short space of time. He also produced for the inspection of the meeting a caricature belonging to the Odontological Society, which represented the operation of transplantation of teeth. It was dated 1787, and was interesting from the fact that at that time John Hunter was writing a treatise on the teeth. Mr. Tomes also read an abstract from an old book (Foot's 'Life of Hunter') in which it stated that a lady fell a victim to venereal disease through a tooth being transplanted from a syphilitic girl. This danger was considered by this writer sufficient to banish the operation from surgical practice.

Dr. TAFT (of Cincinnati) in opening the discussion said no doubt the subject of replanting was one about which they had all been thinking during the last few years. The question suggested itself at once as to what were the occasions on which it was best to resort to the operation. In his own practice he confined it to three cases. In the first place where a considerably good tooth, as sometimes occurred, was accidentally removed by the Dentist. Secondly, if by any other accident a valuable tooth had been removed it should usually be replanted with the hope, and usually with the result, of a good union and perfect fixedness of position. And thirdly, in very obstinate cases of alveolar abscess, where after exhausting all resources there was a failure to secure the desired end, and especially where the fistulous opening terminated on the surface outside. Sometimes, even where the fistulous opening was in the mouth, he deemed it best to remove the tooth. It was only, however, in these extreme cases, where the ordinary treatment failed and where there was an obstinate persistence of the condition, that he removed the tooth, simply for the purpose of ascertaining what the trouble was; and frequently there would be found, in such cases, on the root beyond the reach of the scaling instruments deposits sufficient to keep up the irritation. With regard to the success of the operation in the case of a thoroughly healthy person, especially if under forty years of age, he should certainly expect to secure reunion on replacement. The tooth would not always remain so long in the mouth as the other teeth, even in the most favorable cases, but in some cases it would. He had a case in his mind at the moment where, thirty-five years ago, a tooth was removed by accident and replaced, and yet, four years ago, it was as good as any other tooth in the mouth. That was a case of accidental removal from the mouth of a boy of sixteen. The tooth was promptly replaced and no inflammatory action set up afterwards, but union occurred by first intention. Replanting was far more likely to be successful with the anterior teeth than with the molars, and he had invariably found that if there was a giving way anywhere it was with the latter. Some people condemned the operation *in toto*, because of occasional failures, but that ought not to deter them from trying it. The method by which union took place was of the same character as the repair produced in any surgical operation, and where the tissue had been disturbed as little as possible, there the union would be the most enduring. Reunion was made between the walls of the socket and the root of the tooth. It had been said that the periosteum was an important element, but it was not a necessity. He had seen union take place with the cementum of the root after it had been entirely denuded of its surrounding soft tissue. The method of accomplishing the operation was by the careful removal of the tooth with as little breaking up of the periosteum as possible; by

avoiding laceration of the soft parts and fracture of the process, and then if the tooth was to remain long out of the socket he regarded it as important that the socket should be filled up with a pledget of cotton moistened with some preparation to prevent coagulation. Then let the tooth be manipulated most carefully, especially in regard to the root, while out of the mouth, and replaced carefully in its position, retaining it mechanically for some time.

Mr. A. COLEMAN said that fourteen years ago his attention had been turned to the operation of replantation, and he had thought that by the employment of antiseptic means the diseased root of a tooth might be brought to a condition in which it was safe to replace it in its socket. His process was a simple one, consisting in the removal of the tooth, the scraping away of a large portion of the diseased membrane, and some of the cementum as well, the immersion of the exposed portion in an antiseptic, and then at once the returning of it to its alveolus. Treated in that way, his cases had not been very successful, and he had been led, probably by that and other circumstances over which he had no control, to discard the operation. In the same way as with the operation of ovariectomy when first introduced, its success was very small, but he thought Dr. Magitôt had brought success up to a point where replanting might well be called a legitimate operation.

Dr. ATKINSON (New York) begged the indulgence of the meeting while he referred to the process on which the operation so highly commended, and justly so, in his opinion, was founded. When they understood the histological formation of the tissues displayed on the diagrams before them, they would be in a position to decide whether they were healthy or unhealthy. John Hunter (and he mentioned the name in reverence), inspired by his necessities, had given the best definition of the word "inflammation" that had ever been pronounced, when he said that it was none other than the return of the tissues to their embryonic condition. Any one not acquainted with the process of the upbuilding and taking down of the elements of the tissues would not be able to explain the diagrams which were before them. He therefore would advise the young men—for they were the hope of the world—to eschew books, and taking the book of nature make examinations of the processes for themselves, and so arrive at the truth. In conclusion, he complained that the cases brought forward depended too much on generalisation and individual observation for them to be quite certain of what they were doing, and where professional learning was based at all upon guesswork, it behoved honest men to move cautiously.

Mr. BALKWILL said that in several instances where one tooth had been condemned and another tooth in close proximity to it was out of place he had been successful in removing the condemned tooth and forcibly pulling the tooth which was out of position into the position of the extracted tooth. With regard to the replanting of teeth after scraping off the diseased periosteum, the amount of success he had had was not sufficient to encourage him in that direction, but he had been rather surprised that so little reference had been made in the discussion to the bad effects of absorption taking place as well as to the danger of alveolar abscess being set up after the operation. He had found absorption of the root to take place in a large number of cases, and in every instance he should have supposed the absorption had been caused by his having scraped off the periosteum, because all cases of failure had occurred after that had been done, but

in one case where it had not been done the tooth remained ornamental for about a year, and then suddenly gave way, entire absorption of the root having taken place. That the operation of replanting was exceedingly successful in some cases, he could himself bear testimony, and he would instance the case of a gentleman who had a lateral tooth extracted owing to inflammation of the periosteum of a chronic character. The periosteum was scraped off and the tooth replaced. After an absence of several years in the West Indies the patient returned, when the tooth was found to be perfectly firm and apparently healthy at the root, but the crown had given way in consequence of caries, and to show how firm the root was, he had been able to perform the operation of pivoting upon it.

Dr. JOSEPH ISZLAI (Buda-Pesth) related a case of successful replantation in a young girl of fifteen, where on removing a deformed tooth he had brought away with it the first bicuspid. On inspection six months after the operation the replanted tooth was found to exhibit the same sensibility to heat and cold as its neighbours. Though the operation could be successfully performed in favorable cases, he still had doubts whether it would be good in cases of gum-boil and periostitis. He had not seen such cases himself where the result had been a saving of the tooth for more than two years, and he thought most cases could be dealt with better by treating the pulp cavity conservatively and disinfecting it.

Mr. SPENCE BATE having detailed three cases of successful replanting where the teeth had been knocked or pulled out by accident, said that his experience led him in a totally different direction from Dr. Magitôt and others with reference to teeth that had been treated for alveolar disease. First of all there was a much more surgical and better way of treating alveolar periostitis than that of extraction and replanting. His practice had been for several years to drill through the alveolus into the extreme cavity of the tooth where the inflammation existed, and then to treat it with carbolic acid. The percentage of failures had been so small as not to be worth recording. Such confidence did he feel in that process that he was certain that except in extreme cases he would be able to save the tooth without extraction. In cases where he had found it necessary to extract, it had invariably happened that where the periodontium had been destroyed by inflammatory action the replacing the tooth had excited necrosis of the root. He had always thought it to be a strict rule that if the periodontium was in a diseased condition the tooth ought never to be replanted, and he did think any surgeon would believe that bone could be produced where the periosteum had perished. The cases mentioned by Dr. Magitôt were decidedly contrary to the experience of surgeons in similar cases. He would make the same remark with reference to Dr. Taft, who seemed to think that the periosteum was not of the consequence or importance in the reproduction of teeth that it seemed to him (Mr. Spence Bate) to be. Only very recently he had had a case where he had extracted the tooth, removed the thickened periodontium, shortened the tooth, and replaced it, and the consequence was that it united with the tissues, but still remained loose and required to be extracted. His opinion, therefore, was dead against replantation where inflammatory action existed to any large extent.

Mr. S. J. HUTCHINSON wished to take the opinion of the meeting on the following three questions :

1st. Is replantation to be a recognised operation where the periosteum is diseased ?

2nd. Is immediate replantation to be a recognised operation where a healthy tooth is removed accidentally or to facilitate a difficult extraction?

3rd. Is not the proportion of successful cases of individual practitioners greater by treatment than by replantation?

This course being objected to, the matter dropped.

After a few observations from Mr. BROWNE-MASON, who bore testimony to the success of replantation in cases of removal by accident, the discussion was brought to a close by Dr. MAGITÔT, who, in reply to the questions which had been put to him, said that the cases of failure were all due to the non-establishment of vascular union; the graft failed and the tooth was rejected; it remained loose, and when the retaining apparatus was removed it fell out. In some of these cases there was great hypertrophy of the periosteum; this he believed to be a condition very unfavorable to success. In others the periosteum was destroyed in lanes (gouttières) running longitudinally down the fang; he believed it was essential for the success of the operation that there should be a complete ring of living periosteum round the root. Some of the speakers had mentioned absorption of the root of the replanted tooth; he had not met with this. He had cases under observation which had been done in 1875, and the teeth were still quite firm. He believed it was quite unnecessary to fill the root canal. Indeed, he objected entirely to the introduction of any foreign substances, as being likely to set up irritation or inflammation, and it appeared to him possible that some of the evil results spoken of might have been due to this practice.

Mr. DANIEL CORBETT (of Dublin) then read a paper on "Interrupted Second Dentition as a Cause of Reflex Constitutional Disturbance," which will be found in another column.

A vote of thanks having been tendered to Mr. Corbett, the proceedings were adjourned for an hour.

Dental News.

ON PASSING EVENTS.

By "PHOSPHOR."

DENTAL DEMONSTRATIONS.

DURING the time that the various sections of the International Medical Congress were holding their meetings, clinics of more or less interest were given at the Dental hospitals and other places. No objection could be taken as long as these demonstrations were witnessed by the profession and by students in the proper place—a received school or hospital. The worst that could be said only amounted to

this, that a good deal of shearing was going on with very little wool, and that the mountain made a great fuss about her labour, although the result was merely a little mouse. "*Parturiunt montes, nascetur ridiculus mus.*"

You, Mr. Editor, recorded your objection and protested in one case against the conversion of a Dental depôt into a surgery; but there were other instances of bad taste (to speak of it in the mildest form) exhibited by some who gave public clinics at their private residences. And those who should certainly know better added to the evil by publishing the names of those gentlemen with their addresses in full, a form of advertisement that the Odontological Society may be expected to shudder over. However, it was Congress season, and every one who had—or fancied he had—a fatted calf came out into the market place to kill it in public, and those who looked on clapped their hands and cried "Bravo"! whether they benefited by it or not. But the Congress is over, the golden candlesticks are once more folded in silk paper, the loving cup is boxed away, and demonstrations are supposed to be at an end for a season at least. This may be our hope; but oh dear, no! Mons. Tonsor has been prevailed upon to accept an invitation to return, and with a friend favours us again with a lesson on Operative and Mechanical Dentistry. We are startled, for such philanthropy is not usual, until a little paragraph meets our eye: "As there will be considerable expense, &c., a charge of £5 will be made; this will enable each person to attend for one week, &c." Now, I am not in a position to state whether a sufficient number of worshippers did send in their names to the hotel, but this I can unhesitatingly declare, that the whole thing is about as indelicate a piece of self-assumption as ever was attempted even in the degenerate days before professional etiquette was known or followed. That some men are distinguished for manipulative skill I am willing to allow, but what would the medical profession think if Sir James Paget announced a demonstration at Claridge's Hotel, where an amputation would be performed, and Messrs. Weiss and Sons should afterwards exhibit their skill in the manufacture of wooden legs. If these gentlemen who desire so cleverly to teach us are the distinguished men they represent themselves to be, how is it they can so long be spared from their native land? But I have lived in the good old days, when young men served their time in properly appointed workshops, with assistants qualified to carry out all improvements in Dental mechanics. I have seen the instruction given at special hospitals, and been present at their clinics, and I have taken note of the whole course of study required to fit young men for holding

their own and elevating their calling, and once more, and not for the first time, I set my face against "professors" selling their "artistic work" and their "contour restorations" to any one who has five pounds to throw away. I should like to see education followed upon similar lines to those approved of by the medical profession, for after half a century of careful watching I cannot listen to the stump orator with profit, or the self-elected teacher without discovering that he has more to disguise than to display.

VACANCIES.

NATIONAL DENTAL HOSPITAL AND COLLEGE, 149, Great Portland Street, W.—Dental Surgeon, and Lecturer on Dental Surgery and Pathology. Applications by 15th September.

APPOINTMENTS.

BENNETT, FREDERICK JOSEPH, M.R.C.S. Eng., L.D.S. Eng., has been appointed Dental Surgeon to the St. Mary-lebone General Dispensary.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

A CORRECTION.

To the Editor of the 'British Journal of Dental Science.'

SIR,—There is an error in your report of the clinical demonstrations at the Dental Hospital on Thursday, August 4th, which I shall be obliged if you will kindly correct in your next issue. I filled a cavity in the anterior surface of the right superior first molar (extending into the crown) with cylinders of soft foil at cervical edge, the remainder cohesive foil, with hand pressure, finished with hand mallet. You credit me with having cracked the enamel from cervical

margin to cutting edge. This accident happened to the gentleman operating at the next chair, and not to myself.

I am, &c.,

J. H. REDMAN.

61, Old Steine, Brighton.

[Our contributor still remains under the impression that his original statement was correct, but of course Mr. Redman must know best, and we willingly apologise.—ED.]

EXPURGATION OF REGISTER.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Would not this scheme be simplified very much if first a voluntary list could be prepared, by which chemists, I mean the registered ones, might make a statement as to how far they practised Dentistry. We should then know, if this list was published by the Society, who went fully into the practice of Dentistry, and it would satisfy the chemists who might otherwise oppose the expurgation through their powerful Defence Association if an assurance were given that we did not in any way wish to interfere with them. I have no doubt but that by this means the Register would be practically and at very little expense cleared of 1500 or 2000 names.

I am, &c.,

SUGGESTOR.

ANSWERS TO CORRESPONDENTS.

"MOLAR."—The list was printed exactly as we received it, except for the addition of the addresses, and we cannot make any corrections in it unless properly authorised.

R. COX.—Your communication was forwarded as you desired.

HOWARD KYAN.—Your communication is not quite suitable for our columns.

Communications have been received from Messrs. W. H. Ash (London), "Nemo," T. G. H. Nicholson (Liverpool), A. S. Underwood (London), Sec. of Royal College of Surgeons of Edinburgh, Storer Bennett (London), J. G. Turle (Tottenham), "Dormiens," "Emollient," H. Kyan (Blackburn), J. H. Redman (Brighton), Dr. Dentz (Utrecht), "Molar," "L.D.S.," Geo. Beavis (Newport), J. E. Greaves (Leeds), L. Leigh (Leeds), R. Cox (Clapham Junction), "L.D.S.I.," W. and J. Jamieson, W. O. Thrailkill, T. N. Ritson (Swansea), Daniel Corbett (Dublin).

BOOKS AND PAPERS RECEIVED.

'Surgery for Dental Students,' by A. S. Underwood. 'Lancet.' 'British Medical Journal.' 'Medical Times and Gazette.' 'Pharmaceutical Journal.' 'Chemist and Druggist.' 'Dental Record.' 'Journal of British Dental Association.' 'Ohio State Journal of Dental Science.' 'Croydon Guardian.' 'Dental Cosmos.' 'Vierteljahrsschrift des Vereins deutscher Zahnkünstler.' 'Le Progrès Dentaire.' 'Prospectus of Guy's Hospital Med. School.' 'Bristol Times.' 'L'Odontologie.' 'Sussex Daily News.' 'Redditch Indicator.'

British Journal of Dental Science.

No. 328. LONDON, SEPTEMBER 15, 1881. Vol. XXIV.

QUESTIONS REFERRING TO THE ETIOLOGY OF DENTAL CARIES.

DRAWN UP AND SUBMITTED TO SECTION XII OF THE INTERNATIONAL MEDICAL CONGRESS.

By J. R. MUMMERY, L.D.S. Eng.

1. HAVE you any opportunity of comparing the teeth of mountain dwellers with those of a kindred race of people who inhabit marshy plains or insalubrious valleys?

2. Have you observed any injurious effects upon the teeth attributable to the impregnation of drinking-water with sulphurous acid gas, in volcanic or in coal mining districts?

3. Have you facilities for comparing the condition of the teeth of factory operatives with those of an agricultural population in a neighbouring district?

4. Have you noticed an especially healthy state of the teeth and fuller development of the maxillæ among sailors, whose diet of hard biscuit and tough meat requires efficient mastication, thus approaching the necessary habits of uncivilised races?

5. Have you observed, among communities in a similar rank of life, who subsist on a mixed and often unwholesome diet—requiring but little mastication—a less favorable condition of the jaw-bones and teeth?

6. Have you noticed any remarkably healthy state of the dental organs among people who subsist upon oatmeal, pure wheat-meal, maize, or leguminous food, as compared with those living upon potatoes or other food deficient in albuminoid elements?

7. Are you of opinion that the frequent sucking of sweat-meats, especially when combined with citric or other acids,

may be regarded as one cause of the increasing prevalence of dental caries?

8. Have you observed any instances of the alleged injurious effects of camphor as an ingredient in tooth powder?

9. In instances of the immigration of families who have quitted a highly artificial state of life and have settled in a healthy district or country—adopting simpler and healthier habits—have you had the opportunity of comparing the diseased state of the teeth in the elder children with those of the children born under the later and more salubrious conditions?

10. Have you observed in certain families who have been for a long series of years under your professional care a progressive deterioration of the teeth in each succeeding generation?

11. Have you known instances in which the cumulative influence of hereditary disease, consequent upon repeated intermarriages, has manifested itself in contracted maxillary arch and extensive dental caries?

12. Have any cases come under your notice which lead you to conclude that injury to the teeth may sometimes be traceable to overtasking the intellect of young children, seeing that the brain is undergoing its most rapid growth at the time of life when the whole of the permanent teeth, with the exception of the third molars, are in process of development?

THE USE OF PLATINUM IN AMALGAM ALLOYS.

By THOMAS FLETCHER, F.C.S., Warrington.

It has been for some years a disputed point as to whether platinum is or is not inert in amalgams. Many who are quite competent to judge fairly, declare that it is totally useless, others equally competent state that it is a necessity in a really good amalgam. Until recently, knowing the great difficulty of getting platinum properly in combination, I

have been led to believe that the question rested solely on the point as to whether the platinum existed as a mechanical mixture or, as it really should be, in chemical combination, a state in which it certainly can be obtained by proper management.

Having given a sample which I knew contained the disputed metal in combination to one of its opponents, he still declared that the same alloy was better without the platinum than with it. Fortunately, he sent me the test plugs he had mixed, and an analysis of these showed that both had been mixed with a very large excess of mercury. On repeating his tests under his conditions I obtained the same result, that the platinum, if anything, made the alloy worse, and I fortunately also got at the explanation. It would appear that platinum, like palladium, combines rapidly and strongly with mercury, and that its power of setting lasts for a very short time. If a great excess of mercury is used, sufficient to make the whole mass slow, there is for the first few minutes a distinct and rapid hardening up to a certain point, the platinum having exerted its setting power and become inert. If the mass is now disturbed and worked up, the platinum in combination gets apparently broken up, and having no further power of setting, it simply exists as an inert foreign mixture, and the result is really better without the platinum than with. It would appear, therefore, that this metal is useful only in alloys which are so made and mixed as to set quickly, and that their ultimate hardness is entirely dependent on the setting by first intention being undisturbed; an alloy containing platinum must therefore not only be quickly worked, but it must be made and worked in such a manner that it is not liable to be disturbed until hard. A similar destruction of setting power may be noticed in Portland cement, which if disturbed when partially hard never forms a solid mass, its "growing" together is stopped and the result is a brittle mass with little if any coherence; the same mixing if left undisturbed forming a hard stone which is broken or cut only with great difficulty.

British Journal of Dental Science.

LONDON, SEPTEMBER 15, 1881.

TO DENTAL STUDENTS.

"ABSOLUTE originality in a late age," says a recent writer, "is only possible to the hermit, the lunatic, or the sensation novelist." We hope that we may be deemed innocent of belonging to any of these categories; we fancy, however, that it would puzzle the wildest lunatic, and the most solitary hermit to say anything to students in the way of encouragement and warning, which has not been said a hundred times over already. At any rate, our present ambition is not originality. For the nonce we resemble the famous East Indian Director, and the style we admire is "the humdrum." We wish, in other words, to reiterate once more a few of those trite common places, which are so often on the lips of teachers and so seldom in the minds of students. We would repeat once more that "art is long and time is fleeting," that the glorious opportunities of a student's career once lost can never be regained, that hours misspent now will infallibly mean hours spent miserably hereafter, that the pliant and impressionable days of youth soon give way to the rigid unreceptiveness of adult age, that the brain once moulded cannot be warmed up again to receive a new impression. It rests with the student, and with him alone, whether he shall so comport himself in the hands of his teachers as to prove a successful filling, or shall be swept aside as useless waste.

But the student has duties towards others besides himself. He is entering a profession which earnest and unselfish minds have for years been labouring to raise in its own and the public esteem. Everything is made smooth for him. He will find awaiting him a thoroughly organised education, an admirable special literature, a field of intense interest,

and, if he but conducts himself honourably and wisely, a profession eager to hold out to him the hand of friendship and good fellowship. We know of no calling which offers to the faithful and earnest worker so fair a hope of satisfied aspirations, easily earned distinction and assured competence, as that of Dentistry. The student is, indeed, fortunate who takes it up at the present juncture. All the rough work of investigation has been done, and yet the field has not been so worked out as to place effective scientific research beyond the reach of all but the most highly endowed. In no branch of applied science is the spirit of investigation and improvement more active; in none is there more being done and more to be done. From the scientific standpoint the future is full of hope. Nor, in our opinion, is the prospect less hopeful from the political point of view. The student who now for the first time joins our ranks has a fair chance of living to see the profession of Dentistry casting off its slough of quackery, and emerging into the full light of public esteem. But whether that be its fate, or whether the pessimistic prognostications of others are fulfilled, the duty of the student remains the same—to act in the spirit of those who have worked for him in the past and to hand down their gains with interest to his successors.

But how is this to be done, the student asks. By thought, by effort, by honesty, we reply. We have no wish to depreciate the mechanical side of the profession. But unless broadly based upon sound thought Dentistry has no higher claim to the status of a learned profession than any other handicraft. Its place in civilization will, in fact, always be in direct ratio to its scientific, and not to its mechanical excellence. We think it worth while to impress this upon the student, because he will find that there are some schools of Dentistry in the world where this truth is neglected, and where trifling discussions on mechanical tweedledums are apt to oust all efforts after logical thought, and sound pathological knowledge. The student will do well to bear in mind that it is with disease, and not with broken clock-work that he has to deal. And to qualify him for this purpose there is no education better adapted

than that laid down in the curriculum, if it be only thoroughly and impartially followed. Accurate observation and correct inference are the two legs on which science stands, and neither may be neglected. For the one there is no better training than general anatomy; for the other none better than the study of physiology and surgery. Well trained in these branches of his education the Dental student need deem himself inferior to none in his opportunities of mental culture. If he study them with anything beyond a parrot's brain, he cannot fail to exercise to the full that power of logical thought, which is the first qualification of the *savant*.

Effort on the other hand is an indispensable qualification for all success. In thought as in action, in science as in art, work is the great motor. But work must be honest work, if it is to be worth the name. It must be judged by its result and not by a time scale. Three hours reading a day, if steadily carried out, should suffice to gain one's highest aims. Six hours a day, if wrongly directed and languidly adjusted, will scarcely keep one out of the luckless roll of the plucked. And as in study, so in practice. In Dentistry, honesty is everything. The student who is a careless reader will be a careless worker, and the man who is not honest with himself when he is gaining his knowledge will not be honest with his patients when he is applying it.

These are all commonplaces. We meant them to be so. But they are commonplaces because they are truths, because they are the result of generations of experience. Yet admitted alike by the successful in their success, and by the unsuccessful in their failure, their practical import is too often forgotten, and we feel sure we need offer no apology for once more repeating them.

MR. EDWARD SAUNDERS has consented, in deference to the wishes of his friends to reprint the graceful addresses with which he opened and closed the Dental Section of the International Medical Congress. They are bound up with

the Presidential address which Mr. Saunders recently delivered to the Metropolitan branch of the British Medical Association, and together form a very neat brochure. This souvenir of Section XII may be possessed by any member of the Congress who will apply for one to Mr. Saunders. It will serve in future years as an excellent reminder of the new departure, when Dentistry for the first time placed itself on an equal footing with other branches of medical leaning in a cosmopolitan congress.

SCIENCE is its own reward, we know ; and perhaps that is the reason why the medical journals are so grateful for the honour which the Queen has been graciously pleased to confer on Sir William MacCormac. The Honorary Secretary-General of the International Congress has, no doubt, well earned his honours by his twelve months' hard work, and his power of getting hard work done for him. But has it occurred to no one, that there were others holding high places in the Congress who, by years of hard work, have contributed no less to the success and *éclat* of the great gathering? Has no one felt that a few honours distributed among the presidents of the sections—all men of established repute in life and science—would have been but a fitting recognition of the benefits which science is heaping on the community. If it had been a Congress of foreign aldermen, or a gathering of generals, there would have been a girandole of decorations, whilst if such a monster Congress of doctors had been held in a foreign country it would have separated amidst a shower of crosses. But, as we said, science is its own reward—and other people's as well.

IF the medical profession is shabbily treated in the way of State recognition, the Dental profession is still worse off. The day will come when we shall have our honours as well as other conditions of men. Why not now? At present all that the State has done for the Dentists is to give them a register and make them pay for it.

IN the early days of chloroform, and before its dangers had been realised by the profession, a gentleman—so the story goes—applied to a Dentist for the removal of a tooth under the influence of the anæsthetic. No chloroform was at hand and the Dentist sallied out to get some. On his return he found his patient dead in his operating chair. Since then surgeons have from time to time recorded similar narrow escapes from the blame of having had patients die from anæsthetics while under operation, and it has been generally recognised that in a certain proportion of the so-called deaths from chloroform, the lethal result has been due quite as much to the mental influence of fear upon a weakened heart muscle, as to the direct action of the drug.

By the courtesy of a correspondent we have the opportunity of placing on record the particulars of two cases, in which the odium of a chloroform death was avoided by the merest chance. On the 2nd instant, a little girl was brought by her mother to the Dental department of St. Bartholomew's Hospital. She was attended to, and before leaving the mother stated that the last time the child visited the hospital, her sister who accompanied her was so frightened by what she had seen that on arriving home she was seized with a fit and died almost immediately. What would have been said, we wonder, by an enlightened coroner's jury, if the elder child had chanced to have been put under gas while at the hospital.

AGAIN, very recently, the assistant chloroformist at the same institution administered gas and ether—on Mr. Clover's plan—to a female patient for a perineal operation, which was in every way satisfactory. A few days later the same patient was placed on the operating table with a view to judging of the success of the operation, when after a few minutes she suddenly expired. Post-mortem examination revealed extensive disease of the heart. We wish the public with its facile *post hoc, propter hoc*, would ponder over cases like

these, and learn to make some allowance for the unfortunate practitioners who have had patients die from chloroform under their care. At present the statement "he has lost a patient under chloroform," is often enough a public sentence of starvation to the doctor or the Dentist of whom it is said.

IN the last number of the 'London Medical Record' Mr. Clover describes the method of administering chloroform which he has adopted within recent years. The principle of his method is briefly that chloroform narcosis should be induced without allowing the patient to inhale fresh air, but that air should be introduced as soon as loss of consciousness is perceived. Dr. Sayre claims that by excluding all air not saturated with chloroform he can produce prompt anæsthesia with five, ten, fifteen or twenty drops, according to the age of the patient, and that without the muscular resistance and bodily contortions which commonly follow the administration of chloroform when mixed with air. It is needless to point out that this plan is entirely at variance with both general theory and general practice.

MR. ARTHUR UNDERWOOD'S 'Surgery for Dental Students' appears most opportunely, and will be hailed by those for whom it is written as supplying a long felt want. It is an "examination-book," of course, and does not pretend to be anything else, but it is written in a style with which cram-books have hitherto been little familiar. It is both clear and classical. We shall say more about it shortly. At present all we will add is that we wish Mr. Underwood, besides giving the questions set at the college examinations, had published some model answers to them as well. They would have been received with delight by all but the prigs.

THE question of the advisability of publishing "cram-books" is a difficult one to decide. It is no doubt better

that a student should learn his subject from such a book than not learn it at all, and the best of cram-books tend, no doubt, to the orderly arrangement of ideas in the student's brain. But they all go on the idea that their special science is one of mathematical exactness, capable of reduction into parallel columns and alphabetical categories. We very much fear that the use of surgical cram-books will in great measure neutralise the benefit which the higher minds amongst Dental students would derive from a more philosophical study of surgery, and that would be a great loss. To read a book like 'Paget's Surgical Pathology' is in itself a liberal education, and we are jealous of any attraction that diverts Dental students from the study of such works. Our own experience is that practice is one long effort to forget much that the cram-books taught.

WE have received more than one communication corroborating Mr. Redman's statement in our last issue, and we again freely admit that we were wrong in crediting him with cracking the enamel in the course of filling a cavity at the Dental demonstrations on the 4th ult. We have not yet heard from the gentleman to whom the accident occurred. Mr. Walter Browne, of Nottingham, wishes us to state that he was one of the five operators who opened the demonstrations. We regret that his name was not mentioned in our report.

The Dental Examiner.

MATERIALS RECOMMENDED FOR FILLING TEETH.

It would be difficult to find a subject connected with Dental science that offers more room for discussion, or a class of materials used in Dentistry upon which so much has been said and so much may yet be said, as the operation of stopping and the materials recommended for that purpose.

Looked at from the chemist's point of view the subject will bear thorough examination, but when our chemical experience is brought into the practice of the careful Dental operator all kinds of difficulties present themselves.

The mere filling of a tooth as a mechanical operation can easily be defined, and while employing one class of materials (foils, for instance) the process may be dwelt upon with confidence and certainty. There may be slight differences of opinion as to certain specific qualities of the metals, but these are differences of form only, their properties and the results obtained remaining the same. As fillings they are unalterable, they do not decompose, they do not change colour, they do not shrink, nor do they set up any chemical action when brought in contact with healthy bone, and they are sufficiently hard to bear a certain amount of friction. We might dwell upon some of the varieties of adhesive and non-adhesive gold very commonly used; we might even go further and show that in certain varieties of manufacture many practitioners believe they obtain better results, but viewed simply as a material the chemist and the Dentist can hardly disagree. How different are the results obtained by even the most conscientious operator when we come to speak of amalgams! What varieties of opinions have been expressed as to the uses of amalgam alloys. If we consider for a moment what the operator really requires in them we can easily understand the difficulties that surround him in obtaining what he desires. They must be unalterable in structure as in colour. They must not shrink, nor must they set up any chemical action, and they must also become perfectly hard in the mouth. Can any one material be found as a plastic possessing all these qualities? or can it be employed in every individual case with the same results? We think not. We have no desire to analyse every filling that comes into our hands; we wish only to judge by results, and as practical men to speak of materials as we find them. Then, what has our practice so far taught us? That many amalgams possess *some* of these good qualities, but not all of them. Have we any occasion to remind the reader that we have many well authenticated cases in which a silver

amalgam has preserved a tooth for over fifty years? Black and unsightly the tooth may have become, but thoroughly preserved for all that. Is it necessary to recall the manner in which disease is arrested by amalgams of copper known under the name of Sullivan's cement? Few of us can pass a week without seeing some such preservative action in teeth filled, perhaps, forty or fifty years ago. Does not this point to the fact that durability is better insured where only two metals are in combination? The peculiar action on the dentine observable where copper or silver amalgams have been worn and afterwards removed is well known, and this hardening of the surface does not seem to follow the employment of amalgams containing tin, silver, and gold, yet these ingredients form the principal constituents in all the modern plastic fillings.

The question is continually being asked, Is there any amalgam that can be used in the front teeth, which may be depended upon for its durability, and for retaining not only its own colour but the colour of the teeth that have been so filled? In trying to answer this question I do not think I can do better than refer the reader to some of the later preparations introduced by Mr. Thomas Fletcher, and called by him submarine, contour, facing, and standard alloy. They are prepared from a formula that has been published in Dr. Flagg's well-known book 'Plastics and Plastic Filling,' and judging from their composition they should stand well in the mouth. We have tried them all, and can testify that they work well; and as a set of samples are made up in a small case containing four bottles, each bottle containing one quarter of an ounce, the practitioner cannot do better than judge for himself, but he must attend to the instructions given. The profession do not require to be told how to cut a cavity, then why should they be so careless in the preparation of that which has to fill the cavity. It is quite remarkable the carelessness displayed in mixing an amalgam, and we can safely assert that a good many of the failures we see around us are due to a want of attention to the instructions given. Mr. Fletcher merits the thanks of the profession for the indefatigable industry he has displayed in

trying to supply their wants. Both in the laboratory and the surgery his appliances are in daily use, and with his large experience we should consider him capable of supplying us, and we believe he does supply us, with the best preparations that have yet been devised for the precise purpose they are intended for; but specific instructions are needed, and among those directions one of the most important is never to try to make an amalgam without weighing the proportions.

We propose to speak of several well-known amalgams on a future occasion, with some remarks upon their application and manufacture.

SPECIAL NOVELTIES.

HYDRAULIC GUTTA-PERCHA STOPPING, prepared and introduced by Alexander Jamieson, F.C.S. This is a very good filling, resembling in most respects that introduced by Mr. Jacobs some years ago. It packs firmly, and we have no doubt will make a water-tight stopping, although we have not yet had a long enough experience to judge of its hardness in the mouth.

HAZELINE, introduced by Messrs. Burroughs, Wellcome, and Co. This preparation contains the active principle of the *Hamamelis virginica*, and is used as a superior surgical dressing. In inflammation, ulceration, and irritation of the mucous membrane, it is found to be a useful remedy, and is also very soothing in its action. It has also been recommended for the treatment of catarrh, and may be taken in half-teaspoonful doses internally. Its soothing effect when applied to burns or irritated surfaces is very decided, and its advantages as a mouth wash, particularly after the removal of diseased stumps and teeth, render it valuable as a gentle astringent with a distinctive character of its own resembling somewhat the arnica montana tincture.

[NOTE.—Dental materials or appliances intended for notice in the "Dental Examiner," should be sent to the Editor at 11, New Burlington Street, W.]

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

Thursday, August 4th.

EXPÉRIMENTS ON THE ACTION OF AGENTS USED FOR THE DEVITALISATION OF THE DENTAL PULP.

THE afternoon's sitting of the section opened with a paper on the above subject, by Dr. ARKÖVY, of Buda-Pesth, an abstract of which will be published in our next issue.

A vote of thanks having been passed to Dr. Arkövy, Mr. THOMAS GADDES read a paper on the subject of

"DENTAL SURGERY IN THE ARMY."

Having given the statistics relating to the army both at home and abroad, he pointed out that the Army Medical Department required its officers to undergo a special training and examination, so that the health of the soldier should be efficiently cared for. The relation of diseases of the teeth to the general health was well known, not only to the specialist, but also to the observing physician and surgeon. By the Parliament of 1878, by the General Medical Council, by the Royal College of Surgeons of England, and the other surgical corporations had the necessity for, and the special nature of Dental education and examination been recognised, and yet Dental Surgery was totally ignored, and did not enter into any part of the special training required by the Army Medical Department. That there was a necessity for such an administration all must agree, but the question how such was to be accomplished required careful consideration. In 1857 Director-General A. Smith sought the co-operation of the medical officers of the service to introduce to military practice a more improved practice in Dental Surgery. In 1859 the Honorable the Governor in Council of Madras resolved that a medical officer in every European regiment be instructed in Dental Surgery. Dr. Porteous carried out the provisions of that resolution during two seasons, but notwithstanding the support the movement had the Government took no action. He would suggest as a remedy that measures should be taken to impart to the army medical candidates special instruction by a systematic course of lectures, and of operation, and of operative work, to be included in the subjects for study at Netley and like institutions, and finally, that the pass examination should include questions, and above all, practical work, in Dental Surgery.

A vote of thanks having been passed to Mr. Gaddes,

A paper was read by Mr. A. COLEMAN "On the Administration of Anæsthetics at the Dental Hospital of London since 1868." The records of the hospital showed that within the period referred to anæsthetics had been administered a little over 20,000 times, nitrous oxide being the agent principally employed, and that no case had occurred which had given the operator more than a few moments'

uneasiness, and only two in which there was any need for the systematic use of artificial respiration.

The proceedings were then adjourned till the next morning.

Friday, August 5th.

The subject for the morning's discussion was—

"PREMATURE WASTING OF THE ALVEOLI AND ITS AMENABILITY TO TREATMENT."

Dr. W. H. ATKINSON first read a paper upon "The Reproduction of Bones, with special reference to the variable portions of the *Maxillæ*," in which he contended that though necrosis had been looked upon as sudden death of a given territory of bone, this was exactly the opposite of the truth. He maintained that a vigorous cutting through the dead or dying portion until healthy bone was reached was good conservative treatment—all portions dead or greatly debilitated being thoroughly removed. Debility was no doubt the origin of all disease.

The discussion was opened by Dr. WALKER, who said that he wished, by the aid of diagrams, supported by the production of microscopic sections, to show the normal production of bone in a socket after the extraction of a tooth, the normal absorption of the apex of the socket, the normal absorption of the fangs of a temporary tooth, and then the congestion, inflammation, and recedence of the gum, which processes he would demonstrate to be essentially different from the normal. The first diagram showed a longitudinal section of the adult canine tooth with a vertical section of the alveolus and the socket in which the tooth was implanted, the peridental membrane being shown by a darkened line, and the congested, inflamed, hypertrophied periosteum having receded from the tooth. Another diagram showed a vertical section of the alveolar process after the extraction of a tooth and the vascular and nervous elements in the bone subsequently formed. After the extraction of a tooth there was effusion, and after effusion an arrangement of the cells, which arrangement of the cells continued upwards until a portion of bone was formed right across the open mouth of the socket, as represented. Almost simultaneously with that there was an outpouring of a secretion from the peridental membrane and the periosteum, and then ensued the formation of new bone at the bottom and on the side of the socket, finally filling it up. One microscopic section would show that the external periosteum was capable of creating multi-nucleated cells with the power of excavating the surface of the alveolar process. Another section showed simply a temporary tooth, the absorption of the root of which was precisely similar to the process resulting from the increased development of multi-nucleated cells. It would be seen also that the want of vascularity and increase of the fibrous tissue would lead to a subacute inflammatory process in the alveolus, the loss of the alveolar socket being caused by the inflammation first of all originating in the membrane and then passing into the bone. The point of interest was to account for the great activity shown by this subacute inflammation in passing from one structure to the other.

Dr. ARKÖVY (Buda-Pesth) said that he assumed that premature wasting of the alveoli was the same disease as that known to him

under the name of pyorrhœa alveolaris. He had made inquiries to elucidate the pathological anatomy and the etiology of that disease. The pus was the subject to which he directed his microscopical investigations, and he found, besides pus-corpuscles, a great many threads which were nothing else than *Leptothrix buccalis*. He also found that, in every case where pyorrhœa alveolaris was present, fungi, three, six, or ten times the size of the regular leptothrix, were also present. Continuing his experiments, he found in the pus very often a mass as shown in the diagram, which was nothing else than a glia in which were embedded sphero-bacteria. In order to see the connection between leptothrix and sphero-bacteria he put some of this pus in a watch-glass containing a small quantity of water, some sugar, and a small piece of meat, and after forty-eight hours threads began to grow, the largest of which were nothing else than *Leptothrix buccalis*. After leaving the glass for three days he found a glia, which contained little sacs, in which the sphero-bacteria were included. These burst in a short time, and after seven days he saw projecting the same body and the same formation. Under these circumstances he concluded that pyorrhœa alveolaris found its origin in the fungoid body represented in the diagram.

Dr. ISZLAI confirmed Dr. Arkövy's experiments.

Dr. J. M. RIGGS (of Hartford, Connecticut) wished to say that the nomenclature of this disease originated not with himself, but with some friends in New England, when he first had the honour of giving his views to his society in America. He had been forty years tracing out this disease, which, when he first began his researches, he found alluded to in the text-books as a very obscure one. So unsatisfactory was the treatment that those books gave that he was induced to enter into some investigations with regard to it. It was before much was known of microscopy, at least in the department of Dentistry. He would not go into any theories with regard to this disease, because theories had been set aside and had passed into facts demonstrable, though the subject was still claiming the attention of the younger members of the profession throughout the world. He found that the disease arose at the beginning from a congested state of portions of the gum immediately at the margin. For instance, in the case of a person fourteen years old the margin of the gum would be somewhat congested, of a dark liver colour, swollen, and with blood issuing from it at the slightest touch. Very little pus would be exhibited at the time, because it had not fairly arrived at that ripe stage. In the first stage the disease only embraced the margin of the gum, but when it arrived at the edge of the process the absorbents took hold of and permeated the bone. This was succeeded by the discharge of pus tinged with blood, and by the breaking down of the edge of the alveolar border. The latter process did not occur smoothly and regularly, but in irregular sections, leaving *spiculae* or portions of the bone in an isolated condition, and so cut off from contiguous elements that they speedily became necrosed. The obvious treatment and the only treatment for the cure of that disease was surgical. No acids, no injection of aromatic sulphuric acid, or anything else was wanted—only the delicate but firm hand of the surgeon who knew what to do. It was impossible for the eye to follow the instrument. The eyesight had to be transferred to the fingers' ends, the operation requiring nice manipulation, and a nice distinguishing of live bone from dead bone, lime salts, from

deposits on the tooth underneath the gum, and from the tooth itself. The necrosed portions must be taken away entirely. As far as the inflammatory action extended just so far the periodontal membrane was destroyed never to be restored. In his experience ninety per cent. of these cases could be radically and effectively cured. He would conclude by asking the gentlemen present to go into a series of investigations which would enable them to confirm his view. It was not a matter of theory. He had been over the ground so often that he could state it absolutely and demonstrate it whenever he had an opportunity.

Mr. WALTER COFFIN said that his father's treatment of this disease had been wonderfully successful in cases which had defied Dr. Riggs' mechanical process. The treatment consisted, after the mechanical removal of the bulk of the disorganized or diseased tissues, in the application, very carefully and very locally to the exact point required, of the strongest liquid form of carbolic acid capable of being used, viz. hydrate of phenol, the ordinary solution of carbolic acid being too weak for the purpose. Where there was only ordinary local gum inflammation no particular reaction was observed beyond whitening. When the acid was applied to teeth affected by this disease there was a dark reaction, the carbolic acid coming away jet black. The mouth, of course, was left with considerable loss of gum tissue round the teeth. The result of the treatment bore upon the theories advanced to show that the disease was due to the presence and retention,—however generated, whether by the mechanical irritation of tartar, portions of necrosed bone, or otherwise,—of large numbers of some form of mucous fungoid, or some new growth or form of the ordinary known *Leptothrix buccalis*, which was capable of entire destruction by means of antiseptic treatment. He had been disappointed in hearing Dr. Riggs say that he considered mechanical treatment quite sufficient, as it was his opinion that the application of antiseptic agents had been the chief cause of his father's great success.

Dr. RIGGS inquired of the last speaker whether, if a healthy resolution took place without any introduction of acids, he did not think it was just as beneficial as to break down further tissues by those agents. He had had no occasion to use acids.

Mr. WALTER COFFIN thought Dr. Riggs was to be congratulated on having been successful without the use of acids. Other practitioners would be only too glad if their experience had been the same.

Mr. OAKLEY COLES doubted the expediency of treating the disease as a local matter, and was disposed to think that it arose from impaired nutrition of the parts affected. He could not regard the different forms of the *Leptothrix buccalis* as being the cause of the disease, but thought they were incident to it, and very often found because there was a *cul-de-sac* present in which they could lodge. The inflammation commencing at the margin of the gum caused the separation of the periodontal membrane from the adjoining structures, and after the inflammatory action had gone on to the formation of pus, the periodontal membrane became diseased, and the tooth either lost its colour or retained its colour, as a matter of accident, or a matter of greater or less vascularity. The tartar then became increased, the peculiar form or arrangement which the tartar took being due, he considered, to the surface of the alveolus with which it came in contact. From the peculiarly spongy form of the socket of the tooth it could be easily understood that tartar becoming gradually deposited there would take the impression of the surface

with which it was in relation. As the origin of the disease was partly local and partly constitutional, so the treatment, he considered, should be partly local and partly constitutional. The local causes of irritation should be removed, and the general health of the patient should be looked to. He feared Dentists would, unless they guarded against it, localise and individualise their treatment to such an extent as to lose sight altogether of the connection of disease with the general economy of the human frame, and regard as causes those conditions which were simply incidents.

Dr. FREIDRICHs said that if cleanliness were more frequently practised, he doubted very much whether Dr. Riggs' disease would be so often developed.

Dr. ATKINSON had observed that all carnivorous animals were subject to Riggs' disease, but more particularly those animals which had very little exercise. People who lived on large quantities of animal food also were more frequently attacked by the disease than those who lived on a less stimulating diet.

Dr. RIGGS had found squirrels and dogs affected with the disease; and, so far as the constitutional causation was concerned, he would guarantee to produce the disease in the healthiest person by a very simple process. If they had a foreign body in the muscular tissue of the hand, and it was swollen to an immense extent, with pus issuing, the true surgeon made an incision and took out the foreign body. He injected no zinc or aromatic sulphuric acid, but let it heal by the natural coagulation that took place after the operation.

Mr. FOTHERGILL inquired of Mr. Coffin whether in the cases in which he claimed complete success there had been, in the first place, any loss of the socket and much recession of the gum, and also whether after his treatment there appeared to be a reproduction of the socket and a return of the gum up to the margin of the enamel.

Mr. COFFIN, senior, said the socket never became entirely restored, but in part it did, and the gum also.

Dr. SNOW (Harvard College) said he had been a constant observer of Dr. Riggs' treatment of this affection for the last six years, and it seemed to him to be the treatment necessary for the eradication of the disease. The question was, not what was the cause or origin of the disease, but what would cure it; and his experience had been that the surgical treatment of Dr. Riggs invariably resulted in a cure. He believed the disease had its origin in inflammation caused by foreign substances around the neck of the tooth, and not in a letting down of the tonicity of the system. Riggs' disease was not a good name, but the treatment should be designated Riggs' treatment.

The SECRETARY (Mr. C. S. Tomes) said that in a case in which a limited number of a patient's teeth were affected by the disease, as the certainty of success could not be promised, he had, at the patient's urgent request, extracted the remaining teeth of the entire set, and would be happy to bring them for inspection. On many of the teeth there was not a scrap of tartar to be seen.

Dr. WALKER, in reply, said he had two cases under his treatment which would, he thought, somewhat lessen Dr. Riggs' faith in the theory of foreign matter being entirely the cause of the disease. In the first case, that of a lady whom he had treated for years, he found pus issuing from the socket of each tooth on pressure. Attending the lady for four years he found that at some parts of the year a

much larger quantity of pus would exude than at others, and he also found a large lacerated surface immediately under or above the front or central teeth. Having adopted every treatment, he advised extirpation of the teeth, which was acceded to. After having made three dentures an entire cure of the laceration was effected on the right side and in the front, as also on the tongue, but there was one spot, about a quarter of an inch long, which no treatment would cure, with or without teeth. There was a little more fulness of the soft tissues on the left than on the right side, and he conjectured that the trouble was caused by the folding of the mucous membrane. By arranging a denture of the very lightest character and distending the fold, a perfect cure was effected. The other case was that of a gentleman who had tooth after tooth attacked with acute inflammation. After suffering agonising pain for three days the tooth became lifted in the socket, and thenceforth he was enabled to obtain pus by pressure from the sockets of the teeth so attacked. Pressure applied over the fangs of the fore teeth remaining unattacked did not produce any pus. He (Dr. Walker) might say that his experiments with regard to the recedence and the hypertrophied condition of the gum would not remain where they were.

DENTAL EDUCATION AND THE MEANS THERETO.

A paper on this subject was read by Mr. JOHN TOMES, F.R.S. The writer commenced by giving a brief sketch of the position of Dentistry in this country in the early part of the present century, showing the existence of two classes of practitioners, the one competent to advise, the other competent to treat, but neither fully competent both to say what should be done and to do it effectually. He then passed on to consider the organisation of Dental colleges in America in 1840, and pointed out in what respects the American view of the requirements of Dental education differed from the current English view. The necessity of an attested preliminary education was next insisted on, and quotations from recent articles by medical writers were read to show that certain portions of the recognised medical training were beginning to be looked upon as unnecessary. Mr. Tomes then briefly pointed out the points of coincidence and difference between the medical and Dental curricula, and insisted on the extreme importance of the special subjects in the latter, and the tax they imposed on the intelligence, the industry, and the time of the student. It would be admitted, he said, by all that skill of hand could be attained only by long practice, and few would contend that one time was as good as another for the training. Successful musicians and artists commenced their studies in youth, and had given promise of power before attaining to manhood, whilst among the artizan class he who failed to acquire skill of hand during his apprenticeship seldom attained to excellence afterwards. There was no reasonable ground for doubting that the hand in youth developed anatomically in the direction of its exercise, and acquired thereby a power in that exercise to which the adult hand seldom attained. These facts had an important bearing upon the question of the time at which the Dental student should proceed with his practical education, for the skill needed by the Dentist was inferior to none of these. The results of professional examinations fully established the fact that the medical and Dental curricula

could not be honestly fulfilled in the same four years. Yet it had been said that the practitioner should be a surgeon first and a Dentist afterwards, or, in other words, the entrance upon the special division of the Dental curriculum should be delayed until the surgical education was completed, thus deferring the manipulative training to a period when the attainment of excellence was difficult, and in its highest degree perhaps impossible. He contended that a high degree of skill of hand was absolutely necessary to professional competence—that competence was necessary to self-respect—and that self-respect was necessary to that professional rectitude without which personal comfort in practice would be imperilled, and professional status would be but a shallow fiction. Furthermore, with the existing opportunities a high degree of skill could be gained by perseverance and due expenditure of time in pupilage, and it was the bounden duty of the teacher to press, and of the examiner to demand, its possession. In conclusion, Mr. Tomes expressed the high degree of satisfaction, not to say pardonable pride, which the surviving members of his generation felt in seeing an educational scheme in the origination of which they took part, completed and rendered national, and a calling heretofore of undefined position elevated by the legislature to the rank of a learned profession.

The PRESIDENT said no doubt it would be an empty form to ask those present to support him in thanking Mr. Tomes for his paper. Finding an unusual number of distinguished professors and practitioners from all parts of the world present at their Congress, the English Dentists would have been wanting in their duty if they had not laid before their brethren the scheme of education which had been occupying attention in this country for so many years. When one recollected the time when, not only was there no school at which technical knowledge could be gained, but there was the greatest jealousy and desire to exclude Dentists from the medical profession, the invaluable change which had taken place could not help being noticed. Dentists should greatly congratulate themselves on the present occasion, when they were under the eyes of the most distinguished practitioners, that they were able to show that the foundations of their educational system were broad and strong, and were calculated to produce a goodly edifice in the future.

Dr. BUTLER (Cleveland, U.S.A.) agreed that the time when the most beautiful manipulative skill could be obtained was in comparative youth, and thought that the reader of the paper was one of the most striking examples where mature age and experience had the ability to give a younger generation the foundation upon which to build a truly professional life.

Professor SHEPHERD (Harvard University) heartily approved of the statements made and the position taken up by Mr. Tomes. From the experience of a good many years' teaching in America he was convinced that the problem as presented had been worked out admirably. Occupying the position necessarily of conservers of the health of the mouth each member of the profession must be an expert handworker, and any system of education that did not enable a Dentist to skilfully preserve the organs upon which he worked, was a failure. All education which might be supplementary to the one grand object, the salvation of the teeth, was admirable, and should be acquired as much as possible in addition to the practical ability to work successfully for securing the grand end.

Dr. HOLLAENDER said that in Germany, until ten years ago, people were admitted to the study of Dentistry who could scarcely write their names or read a few lines of German. They came from the barbers' or blacksmiths' shops, and they were allowed to go to the universities and attend lectures, where they picked up a little technical knowledge, and the state of the profession could be easily imagined. Since then, however, their ranks were recruited from excellent men of good attainments, who must know a little Latin, a good deal of English, French, or Greek, and something about history, geography, and natural science. They were also supposed to know a little of anatomy, physiology, and chemistry, so as to follow the lectures they attended, but they were not able to understand so much as they were imagined to be. A great many of them turned their attention to study again after passing, but he felt that a still higher standard of knowledge ought to be exacted.

Dr. TAFT said he did not know the position of Dentistry fifty-five years ago in England, but on the other side of the water fifty years ago Horace H. Hadon and the late J. Harris had in their minds the idea of systematic education in connection with the medical colleges by the institution of professorships of Dentistry, from which they hoped to obtain a realisation of that which Dentists had been seeking for many years past. The doors of the colleges, however, were closed against them, their propositions were not entertained, and they had to rest awhile. After a time, upon consultation with others, they decided to establish a special Dental College, in which should be taught all branches of knowledge appertaining to Dental education. Accordingly, a special Dental College was established in Baltimore about the year 1843, which had been in operation since that time. A little after that a *confrère*, Dr. Harris, conceived the idea of establishing a second institution of the kind, and from that time they had had institutions established, specially organised with a view of giving proper Dental education, the result of which was that the profession had been greatly elevated. Those familiar with the curriculum of the first college established would recognise how imperfect it was as compared with the curriculum of to-day. The main point originally was to give that technical education which was regarded as all-important, but by-and-by the desire for a higher culture began to grow. The effect was that the doors of the medical colleges, which were at first shut to them, were now open, and the Dental profession was recognised, as was evidenced by the meeting that day of the Dental section of the Congress. The special colleges in America had accomplished a work which would not have been accomplished had they not come into existence, and had there not been such a system of Dental education adopted students might still be knocking in vain at the doors of the medical colleges. The universities were being opened to them in all countries where the profession had any standing, and they should be careful that they did not do injustice to the memory of those who had been the pioneers in this work.

A paper, which we hope to publish in full in a future issue, was then read by Dr. MARSHALL WEBB (Lancaster, U.S.A.), entitled "The Restoration of Contour, the only way to keep permanently separate the Margins of Enamel on Proximate Surfaces and prevent Recurrence of Decay," and the Section adjourned.

Dental News.

ON PASSING EVENTS.

By "PHOSPHOR."

THOSE students who are about to commence the study of their profession as well as those who have already made some progress would do well to carefully peruse Mr. John Tomes's thoroughly matured and exhaustive essay, entitled, 'The Study of Dental Surgery, and the Means Thereto,' as delivered by him at the International Medical Congress. They will find in this paper incentives to increased exertion and directions as to pupilage that will fit them for all professional emergencies. No better testimony could be advanced as to the excellence of these directions than the comments made upon them by the 'Lancet' in its issue of August 20th.

As I have on so many occasions disagreed with the conclusions arrived at by this influential medical journal it is but just that I should acknowledge the correctness of its comments on the present occasion. It says, "Mr. Tomes dealt most completely with the question which was cordially accepted as the ideal system. Mr. Tomes pointed out that the preliminary examination in arts is the same for the licence in Dental surgery as for the membership of the College, and that whilst most of the subjects in the two curricula are also the same, where they diverge the difference is one of kind and not of degree, both costing the same in time, labour, and money."

As Mr. John Tomes has never wavered in his opinions it is agreeable to find that at last he has convinced so formidable an opponent, and I cannot do better than quote some of Mr. Tomes's concluding remarks, with which every one must agree:—"In reviewing the task imposed on the student," he says, "it may be asked whether I have not

overstated the amount of special training needed to ensure the acquisition of the necessary manipulative power. I would answer, No, with all the emphasis of which I am capable. For I contend that a high degree of skill of hand is absolutely necessary to professional competence—and that competence is necessary to self-respect—and that self-respect is necessary to that professional rectitude, without which personal comfort in practice would be imperilled and professional status would be but a shallow fiction.”

Still we must guard against the evil effects of over study, which sometimes, as Dr. Lyon Playfair has said, saps the vigour and energy of the country. There is a loud outcry just at present for higher education, but that which we have most to study is capacity for learning. The youth who went to be crammed for a college examination was perfectly right in objecting to having a “quart poured into him when he could only hold a pint.” The great thing to avoid is the mixing up of sham learning with real, the exhibition of showy intellectual acquirements instead of substantial education. I have always disagreed with Mr. Pope and his well-known line, “A little learning is a dangerous thing.” It is, as somebody has said, “one of the most egregious fallacies of our benighted ancestors.” Superficial learning has its advantages sometimes, that is, if we can only make it extensive enough, for competitive examination may be carried to such an extent as to take out of us all original thought or genius. The rubbing down of individual angles may be carried to such an extent as to leave the student little better than a “learned fool,” quite unfitted for the ordinary battle of professional life.

DISEASE OF THE LOWER JAW, APPARENTLY FROM FUNGOUS GROWTHS.

At the last Congress of German surgeons, Dr. F. Busch, of Berlin, showed the half of a lower jaw having a large ulcerative defect extending nearly as far as the angle. At the angle the bone was much thickened; beyond this it

became thinner and the condyle was normal. On microscopic examination of sections of the thickened bone, there were found numerous opaque foci, which Dr. Busch regarded as being very probably due to mycosis. They consisted of a number of small glittering corpuscles enveloped in a fine fibrous network; the addition of solutions of potash or soda rendered the network transparent and the corpuscles very distinct. He said that, although these corpuscles appeared to be of a fungous nature, there was no certain proof that they were so. They were not identical in any case with the fungi which caused the disease in the jaws of cattle, known as actino-mycosis.—*London Medical Record.*

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM AUGUST 1ST TO AUGUST 31ST, 1881.

Extractions	{ Children under 14	497
	{ Adults	812
	{ Under Nitrous Oxide	347
Gold Stoppings		58
White Foil ditto		5
Plastic ditto		201
Irregularities of the Teeth		35
Miscellaneous Cases		207
Advice Cases		191

Total..... 2353

HERBERT G. BLACKMORE,

House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM AUGUST 1ST TO AUGUST 31ST, 1881.

Number of Patients attended	1326
Extractions { Children under 14.....	417
{ Adults.....	577
{ Under Nitrous Oxide	112
Gold Stoppings	32
Sheets of Gold used, independent of Pellets.....	18
Other Stoppings	236
Advice and Sealing	147
Irregularities of the Teeth	32
Miscellaneous.....	201

Total operations 1754

JOHN S. AMOORE,

House Surgeon.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our
Correspondents.]

To the Editor of the 'British Journal of Dental Science.'

THE CAUSE OF CONTRACTION IN AMALGAMS.

SIR,—In the issue for September 1st is a paper by G. Siedentap, of Bonn, which undoubtedly is written after a very limited amount of experimenting. He says his method of preventing as far as possible the subsequent contraction of amalgam consists in a thorough pressing out of the mercury—all superfluous mercury being pressed out. If he will extend his experiments he will find, as myself, Dr. Hitchcock, of Harvard University, Dr. Flagg, Dr. Chase, and many others have found and repeatedly stated, that excess of mercury causes, not contraction but alteration of form, which is mistaken by careless observers for contraction; that an excess of mercury once added can never be removed or squeezed out by any amount of force, the alloy retaining permanently nearly double the amount of mercury necessary; and that squeezing mercury out after adding a great excess causes extraordinary changes of form in a plug and consequent leakage and failure. So much has been written on this subject and so frequently have the simple proofs been given in detail that one would almost look on even a reference to them in a current journal to be a waste of space.

The cause of contraction has been "assumed" by Mr. Siedentap without actual contraction having been proved, and if in his experiments any contraction at all existed it would be so small as to be lost in the alteration of form, which evidently he has mistaken for contraction, this alteration of form being the cause of failure in nine plugs out of ten which do fail.

The action of copper amalgam which he refers to as absence of contraction is simply chemical protection by the copper salts formed. As generally used copper amalgam makes perhaps the most leaky plug of any known material, and many plugs affording absolute and permanent protection are so loose that the shake can be distinctly felt.

I am, &c.,
THOS. FLETCHER.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

APPLEBY KING.—We have no space for your communication in the present issue, but hope to publish it shortly. We shall not insert any more letters on the Irish Diploma.

W. HODGSKIN HOPE.—Your paper will, if possible, appear in our next.

DENTAL STUDENT.—Get the Calendar of the London Dental Hospital.

J. W. GRIFFITH.—None of the gentlemen named are registered as L.D.S.'s in the Dentists' Register for 1881, and we must therefore assume that the Gazette is in error, but as we are not publishing the licentiate's list this year the question does not materially affect us.

Communications have been received from Messrs. Rees Price (Glasgow), Alfred Coleman (Streatham), Thomas Fletcher (Warrington), House Surgeon Dental Hospital of London, Francis Hird (London), W. Hodgskin Hope (Wellingborough), Burroughs, Wellcome & Co. (London), H. Breward Neale (Birmingham), J. W. Griffith (Cape of Good Hope), Edwin Saunders (London), Walter Browne (Nottingham), Appleby King (Worcester), W. Armston Vice (Leicester), J. S. Amoores (London), E. W. Cox Moore (London), John A. Fothergill (Darlington).

BOOKS AND PAPERS RECEIVED.

'International Medical Congress—Souvenir of Section XII,' 'Prospectus of National Dental Hospital,' 'Pharmaceutical Journal,' 'British Medical Journal,' 'Lancet,' 'Medical Times and Gazette,' 'Pharmaceutical Journal,' 'Specialist,' 'Prospectus of Charing Cross Hospital,' 'The Dental Jaiurus,' 'Le Progrès Dentaire,' 'Calendar of London Dental Hospital Medical School.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

DENTAL STUDENTS' SUPPLEMENT.

SEPTEMBER 15, 1881.

I.—THE LICENSING CORPORATIONS.

COMPARATIVE SUMMARY OF REGULATIONS FOR THE LICENCE IN DENTAL SURGERY.

	Royal College of Surgeons, England.	Royal College of Surgeons of Edinburgh.	Royal College of Surgeons in Ireland.	Faculty of Physicians and Surgeons, Glasgow.
1. PRELIMINARY EXAMINATION				
2. AGE at which the Candidate may present himself	Compulsory on all who commenced their Professional Education after July 22nd, 1878	Compulsory on all who commenced their Professional Education after August 1st, 1878	Compulsory on all, except in the case of the modified Examination, <i>vide infra</i>	Compulsory on all who commenced their Professional Education after August 1st, 1878
3. DURATION OF PROFESSIONAL EDUCATION	Twenty-one Four years	Twenty-one Four years	Twenty-one Four years	Twenty-one Four years
4. COURSES OF LECTURES, &c., to be attended at a recognised School:				
Anatomy	Two Courses, or one Course and twenty Lectures on Head and Neck	One Winter Course	One Course	Two Courses, or one Course and twenty Lectures on Head and Neck.
Physiology	One Course	One Course of fifty Lectures		One six month's Course.
Surgery	Ditto	One Winter Course	Ditto	Ditto.
Medicine	Ditto	Ditto	None	Ditto.
Chemistry	Ditto	Ditto	One Course	Ditto.

	Royal College of Surgeons, England.	Royal College of Surgeons of Edinburgh.	Royal College of Surgeons of Ireland.	Faculty of Physicians and Surgeons, Edinburgh.
4. COURSES OF LECTURES, &c. (continued) — Materia Medica Dissections Practical Chemistry and Metallurgy Practice of Surgery ² and Clinical Lectures	One Course Nine months One Course of each Two Winter Sessions	One three months' Course Nine months One three months' Course One six months' Course, or two three months' Courses One Course Ditto Ditto	One Course Two Courses One Course Two Winter Sessions None } Two Courses Three years under a Re- gistered Dental Licen- tiate Nine months	One three months' Course. Nine months. One three months' Course. One year. Twenty-four Lectures. } Twenty Lectures. Twelve Lectures or De- monstrations. Three years under a Re- gistered Practitioner. Two years.
Dental Anatomy and Phy- siology	Two Courses	One Course		
Dental Surgery	Ditto	Ditto		
Dental Mechanics	Ditto			
Practical Instruction in Mechanical Dentistry ...	Three years under a competent Practitioner	Three years under a Re- gistered Dental Practi- tioner Two years		
Practice of Dental Surgery in a recognised Dental hospital, or in the Dental department of a recog- nised general hospital	Two years			
5. FEE.....	£10 10s. over and above any stamp duty	£10 10s.	£10 10s.	£10 10s.
6. LEAST period during which unsuccessful Candidates are referred to their stu- dies	Six months	Three months	Six months	Three months.
7. PARTICULARS OF EXAMINA- TION	(A) Written : On General Anatomy and Phy- siology	Written and Oral : First Part.—Anatomy, Physiology, Chemis-	Written and Oral : On all the subjects of the Curriculum	Written and Oral : First Part.—Anatomy, Physiology, Chemis-

General Pathology and Surgery (Both with especial reference to Dental practice) (B) <i>Oral</i> : On all the subjects in the Curriculum Preparations, Casts, and Drawings Fillings Cases for Diagnosis, Instruments, &c. January and June	try, and Metallurgy. Second Part.—Surgery, Medicine, Material Medica, and special Dental subjects. Practical Examination at a Dental Hospital. Candidates are to bring Excavators, Files, and Plugging Instruments.	Preparations, Microscopes, and other appliances	try, and Metallurgy. Second Part.—Surgery, Medicine, Material Medica, and special Dental subjects. Practical Examination at a Dental Hospital. Candidates are to bring Excavators, Files, and Plugging Instruments.
8. DATE OF EXAMINATION ...	First Part.—1881, Tuesday, October 18 1882, Tuesday, Jan. 24 " " March 28 " " April 18 " " July 18 Second Part.—Following Thursday	—	1881, October 13—15. 1882, January 24—26. " April 18—20 " July 17—19
9. MODIFIED EXAMINATIONS, OR EXAMINATIONS <i>sine curriculo</i> : (a.) Conditions of eligibility	Candidates must have been in Practice or have commenced Professional Education prior to September, 1859	Candidates must have been engaged in Dental Practice at least five years	Candidates must be Registered Dental Practitioners in Practice before August, 1878, or apprenticed before August, 1875.
(b.) Certificates, &c., required	One of moral character signed by two Members of the College or two Licentiates of the Licensing Bodies in the country where the education was received	Certificates of moral and professional character from two Fellows or Licentiates of a Royal College of Surgeons, and from two Dentists of repute	Certificate of moral and professional character signed by two Registered Medical Practitioners

9. MODIFIED EXAMINATIONS (continued)— (b.) Certificates, &c., re- quired (continued)—	Royal College of Surgeons, England.	Royal College of Surgeons of Edinburgh.	Royal College of Surgeons of Ireland.	Faculty of Physicians and Surgeons, Edinburgh.
(c.) Manner of Examination	Professional address Date of commencing Dental Practice Whether a Member, Licentiate, or Graduate of any British College of Physicians, College of Surgeons, or University, with date of Licence, &c. Of what learned societies a Mem- ber	Name in full Age Address Date of commencing Den- tal Practice Whether in possession of Degree or Diploma in Medicine or Surgery; if so, what, and date	Name Age Address Date of commencing Prac- tice.	Name. Age. Address. Date of commencing Prac- tice.
Professional status.	Whether in Dental Practice separately, or, if not, in con- nection with what business	Whether practising Den- tistry in conjunction with other business, and, if so, what	Professional status.	Professional status.
Whether he has employed Ad- vertisements or Public Notices since July 22nd, 1876	Particulars of Professional Edu- cation Same as ordinary Examination	Particulars of Professional Education Same as ordinary Exami- nation	Particulars of Professional Education. Same as ordinary Exami- nation.	Particulars of Professional Education. Same as ordinary Exami- nation.
(c.) Manner of Examination	Same as ordinary Examination	Same as ordinary Exami- nation	Same as ordinary Exami- nation	Same as ordinary Exami- nation.
For further information apply to Secretary	EDWARD TREMMER, Esq., Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.	JOSEPH BELL, Esq., 20, Neville Street, Edinburgh.	JOHN BRENNAN, Esq., Royal College of Surgeons, Dublin.	ALEX. DUNCAN, Esq., Faculty of Physicians and Surgeons, Glasgow.

II.—EDUCATIONAL BODIES.

LONDON.

DENTAL HOSPITAL OF LONDON AND LONDON SCHOOL
OF DENTAL SURGERY, LEICESTER SQUARE.

HOSPITAL STAFF.

Consulting Physician.—SIR THOMAS WATSON, Bart., M.D.*Consulting Surgeon.*—CHRISTOPHER HEATH, F.R.C.S.*Consulting Dental Surgeons.*

SAMUEL CARTWRIGHT, F.R.C.S.

JOHN TOMES, F.R.S.

Dental Surgeons.

9 a.m.—Monday.....	CHARLES JAMES FOX, M.R.C.S., L.D.S.
„ Tuesday	A. GEORGE MEDWIN, M.D., M.R.C.S., L.D.S., &c.
„ Wednesday	GEORGE GREGSON, M.R.C.S., L.D.S.
„ Thursday	ALFRED COLEMAN, F.R.C.S., L.D.S., &c.
„ Friday	HENRY MOON, M.R.C.S., L.D.S.
„ Saturday	ALFRED HILL, L.D.S.

Assistant Dental Surgeons.

„ Monday.....	F. CANTON, L.R.C.P., M.R.C.S., L.D.S.
„ Tuesday	ARTHUR S. UNDERWOOD, M.R.C.S., L.D.S.
„ Wednesday	D. HEBURN, L.D.S.
„ Thursday	R. H. WOODHOUSE, M.R.C.S., L.D.S.
„ Friday	STORER BENNETT, L.R.C.P., M.R.C.S., L.D.S.
„ Saturday	S. J. HUTCHINSON, M.R.C.S., L.D.S.

Administrators of Chloroform.

9.30 a.m.—Tuesday and Wednesday.....	J. T. CLOVER, F.R.C.S.
„ Friday and Saturday	F. WOODHOUSEBRAINE, F.R.C.S.
„ Monday	G. H. BAILEY, M.R.C.S.

Demonstrators.

CLAUDE ROGERS, M.R.C.S., L.D.S., D.D.S. U.S.

JOHN ACKERY, M.R.C.S., L.D.S.

Medical Tutor.—A. MORTON SMALE, M.R.C.S., L.D.S., L.S.A.*House Surgeon.*—HERBERT BLACKMORE.*Assistant House Surgeon.*—ARTHUR CURLE.*Dean.*—T. FRANCIS KEN UNDERWOOD, M.R.C.S., L.D.S.*Demonstrations.*

The medical officers will make every effort to give Demonstrations to the junior pupils, on cases selected from time to time, every morning during the Lecture Session; and at the end of the Course those gentlemen who have attended the Demonstrations to the satisfaction of the Medical Officers will be permitted to perform operations at the Hospital under the supervision of the Medical Officers and the House Surgeon.

Dresserships for Cases of Extraction.

These appointments are held for two months, and consist of six Senior Dresserships for extractions under anæsthetics, and eighteen Junior Dresserships for ordinary extractions.

The Senior Dressers will be selected from those pupils only who have entered fully both to the Practice and Lectures of this Hospital, and also to the Course required by the College of Surgeons for the Licence in Dental Surgery at one of the General Hospitals.

MEDICAL SCHOOL.

The WINTER SESSION will commence on MONDAY, OCTOBER 3rd.

LECTURES.

Dental Surgery and Pathology, by ALFRED COLEMAN, F.R.C.S. (Exam.),
L.R.C.P., L.D.S., &c.

THE FIRST DENTITION:—Conditions normal and abnormal. Treatment to be pursued in latter. Period of eruption of the temporary Teeth. Diseases and conditions peculiar to the temporary Teeth. Treatment of same. Absorption of temporary Teeth. Conditions interfering with same and consequences thereof.

THE SECOND DENTITION:—Conditions normal and abnormal. Order and period of eruption of irregularities in the permanent Teeth, in size, form, number, and position. Treatment of irregularities in position. Dislocation, fracture, and other injuries to the Teeth.

DISEASES OF THE TEETH:—Dental Caries; its nature and various forms. Theories of Dental Caries. Treatment of Dental Caries by excision, by stopping or filling. Pathological conditions of the Dental Pulp. Treatment of same when exposed by injury or disease. Preservation of the Dental Pulp. Destruction of same. Dental Necrosis, Exostosis, &c.

DISEASES OF THE PERIODONTAL MEMBRANE:—Congestion. Inflammation. Suppuration. Alveolar Abscess. Pathology. Treatment, &c., of Extraction of Teeth. Difficulties and complications in Alveolar Hæmorrhage. Anæsthetics in Dental operations.

NECROSIS OF ALVEOLI:—Dental Fistulæ. Closure of Jaws by Cicatrices. Diseases of Gums. Congestion. Inflammation. Ulceration. Stomatitis: follicular, ulcerative, and gangrenous. Tumours of parts adjacent to the Teeth. Dental and Dentigerous Cysts. Neuralgia, &c.

These Lectures will be delivered on the Mornings of Tuesday and Thursday, at 8 o'clock, during the months of May and June. Recent Specimens, Preparations, Models, Drawings, &c., will be used to illustrate the Lectures.

Dental Anatomy and Physiology (Human and Comparative), by C. S. TOMES, F.R.S., M.A., M.R.C.S., L.D.S.

GENERAL SCOPE OF ODONTOLOGY:—General Characters of Teeth, as to composition, form, position, &c.

THE DENTAL TISSUES:—Enamel. Distribution of, peculiar modifications of, &c. Dentine, structure, &c., relation of to Bone, Vaso-dentine and Osteo-dentine. Cementum. Structure, distribution, &c. Dental Pulp, structure, modification in advanced age, &c.

THE DEVELOPMENT OF TEETH:—General Account of, as seen in Fish, Reptiles, and Mammals. Special modifications in particular groups. Relation of modern views to those held by Goodsir, &c.

THE DEVELOPMENT OF THE JAWS:—Their bearing upon Irregularities of the Teeth.

THE ATTACHMENT OF THE TEETH:—By Membrane, by Anchylosis, by Implantation in Sockets. The relations existing between these three methods.

THE TEETH OF MAN.

ANATOMY OF CHIEF ASSOCIATED PARTS.

An outline (so far as time may allow) of the Dentition of other Vertebrates. Causes operating to modify an animal's dentition:—(1) Inheritance; (2) Armament for sexual warfare; (3) Provision for capture and comminution of food.

Fish:—Examples of typical dentitions.

Reptiles:— Ditto.

Mammals:— Ditto.

Examples of extreme modifications for particular purposes. Character of Marsupial Dentition; of Carnivorous, Insectivorous, Rodent, and Herbivorous Dentitions.

These Lectures will be delivered on the Mornings of Wednesday and Friday, at 8 o'clock, during the months of May and June. This course will be illustrated by Preparations, Diagrams, and Microscopic Examinations.

MECHANICAL DENTISTRY, by J. WALKER, M.D., M.R.C.S., L.D.S.

Comprising the Preparation of the Mouth for Artificial Teeth. Impression-taking in Wax Composition and Plaster of Paris. Mould-making in Plaster and Metal. Bites or Articulations. The Metals used in Dentistry. Gold-melting, Refining, and Alloying. Plate-making. Artificial Teeth, their qualities and arrangement. How to work Tube and Pin Teeth. Vulcanite, its nature and preparation. Making Vulcanite Cases. Making Pivots. Mounting Spiral Springs. Regulation Plates. Dr. N. Kingsley's Method of making Soft Rubber Obturators.

This Course is illustrated by diagrams and practical demonstrations.

These Lectures will be delivered on the Afternoons of Wednesday, at 5 o'clock, during the months of October, November, and December.

METALLURGY IN ITS APPLICATION TO DENTAL PURPOSES, by H. LOUIS, A.R.S.M., F.S.C., M.M.S.

The Lectures delivered in this Course, while embracing, as far as possible, the subject generally, will be devoted more particularly to those metals useful in Dental practice.

The general properties of the Metallic Bodies will first be examined, and also their Clinical relations to the non-Metallic. Some consideration will then be given to heating appliances, and to the nature and uses of Gaseous and Solid Fuels. After these the metals will be separately treated of, commencing with the noble, and ending with the base metals.

Throughout the Course, such chemical and Mechanical points as may bear upon the Student's pursuits will be treated of, and methods of analysis detailed.

These Lectures will be delivered on the Mornings of Tuesday and Friday, at 12 o'clock, during the months of October and November.

MEDICAL TUTOR.

The Medical Tutor attends on four days in the week, from 5 to 7 p.m. for two months previous to two of the Annual Examinations. His classes are open to all Students, and are intended to assist those who are preparing for their examinations at the College of Surgeons, generally speaking, to guide and direct the studies of the pupils, and prepare them in the subjects for the Examinations.

FEES.

GENERAL FEE FOR THE SPECIAL LECTURES REQUIRED BY THE CURRICULUM (viz., two Courses on Dental Anatomy, two Courses on Dental Surgery, two Courses on Mechanical Dentistry, and one Course of Metallurgy, £15 15s.

Fee for the Two Years' Practice of the Hospital required by the Curriculum, £15 15s.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, **£31 10s.**

Students who perform Operations for Filling Teeth must provide their own Instruments for the same.

PRIZES.

The Prize-day will in future be held in July.

1. Prizes are awarded by the Lecturers for the best examinations in the subjects of their respective courses, at the end of the Summer and Winter Sessions.

2. Arrangements have been made for a prize in Operative Dentistry, in the competition for which each candidate will be entrusted with the care of a mouth, which he shall, if not impracticable, set thoroughly in order.

3. A prize of five guineas will be given by Mr. George Buchanan, of Glasgow, for the best paper on the following subject:

Define "NECROSIS." In what sense is the word used with reference to teeth? State what is known of the Etiology, Pathology, Treatment, and possible consequences:—

(a) Of death of the pulp, (β) of death of the peridental membrane.

N.B.—In describing the Pathology of Necrosis, it is necessary to thoroughly enter into the microscopical changes.

4. A scholarship of the value of £20 has been founded by Mr. Edwin Saunders, and will be awarded to the Student who has obtained the largest number of First Class Prizes during the Winter and Summer Sessions preceeding the July in which the award takes place.

Note.—The Medical Committee have resolved, “that the holder of the Saunders Scholarship be admitted without additional fee to an extra year of hospital practice.”

Rules and Regulations to be observed by Students of the Hospital.

[The Dean particularly calls attention to Rules 2, 6, 8, and 11.]

1. Students entering the practice of this Hospital shall (unless exempted for special reasons) do so upon the understanding that it is their intention to obtain the Dental Diploma of the Royal College of Surgeons of England. Before commencing their course of Studies they must sign their names as willing to conform to this rule and the following regulations.

2. Students must attend the Hospital daily (except Sunday) at 9 o'clock a.m. An Attendance-book is provided, in which the Pupils must sign their names each day.

3. No Student shall undertake any operation until he has attended a Course of Demonstrations to the satisfaction of the Medical Officers. When permitted to undertake operations for filling teeth, he must provide the instruments requisite for the same. For all cases of gold filling, permission must be obtained of a Medical Officer. A certificate of having performed 150 fillings to the satisfaction of the Medical Officers or the House Surgeon in each of his two years of attendance will be required from a Pupil before his Schedule can be signed.

4. Every Student entering the Hospital will be required to treat at least two regulation cases mechanically in each of the two years of his attendance at the Hospital.

5. No Student shall, under any circumstances, receive fee or remuneration from any patient attending, or to whom he may become known whilst attending the Hospital, and no mechanical work in the form of artificial teeth shall be supplied to a patient by a Student of the Hospital.

6. Students must be punctual in their appointments with Patients; when otherwise, cases previously under their care will be entrusted to other Students by the Medical Officers.

7. No Student shall make use of the same Operating Chair for Patients consecutively, whilst other Students are unoccupied for the want of the same.

8. All instruments and appliances the property of the Hospital shall, after having been used by a Student, be returned cleansed to their proper places.

9. Students must consider themselves strictly under the control of the Medical Officers of the Hospital. All unnecessary conversation must be avoided, and quietude and gentlemanly bearing before the Patients observed.

10. Any exemption from fully carrying out Rules 1, 2, and 3, can only be obtained from the Medical Committee upon grounds that may appear to them good and proper for granting such exemption.

11. Leave of absence must be obtained from the Dean, to whom in case of sickness, or other unavoidable cause of non-attendance, *written* notice is to be immediately sent.

N.B.—Students will be required to attend the Lectures and Practice during the Two Years, CONSECUTIVELY, except with the special written permission of the Dean. By a Resolution of the Council of the College of Surgeons, all Students entering on and after October 1st, 1877, will be required to complete the FULL TWO YEARS OF HOSPITAL PRACTICE.

In future, at the close of the Winter and Summer Session, the Dean will prepare a report of the attendance, general conduct, and progress of each Student, which will be forwarded to his Parent or Guardian. A copy of these reports will be kept for future reference.

The Dean requests that all Communications relating to the Medical School may be addressed to him at the Hospital, where he will attend in the after-

noons, from September 26th to October 1st, inclusive, from 5 till 5.30 o'clock, or on Wednesday mornings from 9.30 till 10.30.

NATIONAL DENTAL HOSPITAL AND COLLEGE, GREAT PORTLAND STREET, W.

HOSPITAL STAFF.

Consulting Physicians.

B. W. RICHARDSON, M.A., M.D., F.R.S.

W. H. BROADBENT, M.D., F.R.C.P.

Consulting Surgeons.

PROFESSOR ERICHSEN, F.R.S. | SPENCER WELLS, F.R.C.S.

CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeon.—J. MERRYWEATHER, M.R.C.S.

Dental Surgeons.

Monday.....F. HENRI WEISS, L.D.S. Eng.

Tuesday.....

Wednesday.....G. J. WILLIAMS, L.D.S. Eng.

Thursday.....A. F. CANTON, L.D.S. Eng.

Friday.....H. T. K. KEMPTON, L.D.S. Eng.

Saturday.....HARRY ROSE, L.D.S. Eng.

Assistant Dental Surgeons.

Monday.....WILLOUGHBY G. WEISS, L.D.S. Eng.

Tuesday.....G. HAMMOND, L.D.S. Eng.

Wednesday.....G. A. WILLIAMS, L.D.S. Eng.

Thursday.....ALFRED SMITH, L.D.S. Eng.

Friday.....THOMAS GADDES, L.D.S. Eng. and Edin.

Saturday.....W. R. HUMBY, L.D.S. Eng.

House Surgeon.—J. S. AMOORE, L.D.S. Eng.

LECTURERS.

Dental Anatomy and PhysiologyTHOMAS GADDES, L.D.S. Eng.
and Edin.

Dental Surgery and Pathology

Dental MechanicsHARRY ROSE, L.D.S. Eng.

Dental MetallurgyALFRED TRIBE, F.C.S., Fell. Inst.
Chem.

Operative Dental SurgeryW. F. THOMPSON, M.D., D.D.S.

Elements of Histology.....THOMAS GADDES, L.D.S. Eng.
and Edin.

Demonstrator of Dental Mechanics ...W. R. HUMBY L.D.S. Eng.

Deformities of the MouthOAKLEY COLES, L.D.S. Eng.

Arts and Literature.....Rev. H. R. BELCHER, M.A.

Dean.....THOMAS GADDES, L.D.S. Eng.
and Edin.

The Hospital is open for the reception of patients every week-day from 9 o'clock till 11 o'clock a.m. The House Surgeon attends daily from 9 o'clock a.m. till 2 o'clock p.m.

DRESSERSHIPS IN THE EXTRACTION ROOM.—These appointments are held for three months by six senior and six junior Students of the Hospital. The respective dressers for each day are required to be in attendance from 9 o'clock till the conclusion of the practice; and they will be under the direction of the Dental Surgeons for the day and of the House Surgeon.

CLINICAL LECTURES AND DEMONSTRATIONS.—Each Medical Officer will give Clinical Lectures, when opportune, during the ensuing year. Clinical Lectures will also be given from time to time on cases of special interest; and also Demonstrations upon the Preparing and Filling of Cavities, and other operations upon the teeth and contiguous parts.

ATTENDANCE AND EXAMINATION OF STUDENTS.—A Register is kept of the attendance of Students at the Hospital Practice and Lectures. An attendance of full Two Years at Hospital Practice is required by the College of

Surgeons of England; and no schedule will be signed for any Lectures of which less than two thirds have been attended. Class Examinations are held frequently during the several courses to test the progress and attention of the Pupils; and at the end of each Course of Lectures a written examination is held. An insufficient attendance at Lectures disqualifies the Student for receiving any Prize of that year.

LECTURES.

Winter Session, commencing on Monday, October 3rd, 1881—82.

DENTAL ANATOMY AND PHYSIOLOGY, by THOMAS GADDES, L.D.S. Eng. and Edin. On Tuesdays and Thursdays at 7 p.m. during October, November, and December.

The following is the order in which the subjects will be treated:—The Synthetic Study of Odontology. The differentiation of tissues for Dental purposes. The factors in the process of evolution. The specialised tissues produced in successive generations, as Bone; Cementum; Osteo-dentine; Vaso-dentine; Plici-dentine; Hard, or True dentine; and Horn.—The structure of the "typical" hard tooth-tissues: Their structural modifications and morphological relations.—The structure of the pulp, periosteum, and gum.—General distribution and form of teeth, with peculiar modifications as found in Fish, Reptiles, and various orders of Mammals.—Relation of teeth to jaws in man compared with other primates.—The development of teeth as seen in Fish, Reptiles, and Mammals. Origin, structure, and metamorphosis of the several formative organs or pulps and homologous relations.—The attachment of teeth by Anchylosis, Membrane, Hinge and Gomphosis.—The succession of teeth.—The development of the jaws of man—of the antrum, alveoli, &c. The course will consist of twenty-four Lectures, which will be illustrated by Diagrams, Preparations, and Microscopic Specimens.

OPERATIVE DENTAL SURGERY AND THERAPEUTICS, by W. F. THOMPSON, M.D., D.D.S. On Wednesdays, at 7 o'clock p.m., during October and November. (Free to Students of the Hospital or College.)

These Lectures will include the consideration of—Dental Caries leading to exposure of the pulp.—Diseases of Pulp and Peridental Membrane (including Acute and Chronic Alveolar Abscess), and Treatment.—The preparation of cavities, previous to filling.—Filling Materials; including the different forms of gold, methods of preparing and using the same; also the various instruments required for operative work.—The last Lecture will be devoted specially to the subject of Replantation and Transplantation of Teeth. These Lectures will be illustrated by diagrams, specimens, preparations, and operations in the mouth.

DENTAL METALLURGY, by ALFRED TRIBE, F.C.S. On Tuesdays at 9 a.m. during January, February, and March.

These Lectures will be devoted particularly to the consideration of those metals, amalgams, and alloys, which are used in Dental practice. The subjects of the Course will be treated in somewhat the following order:—Historical summary.—The general character of the metallic elements and their relations to the non-metals.—Distribution of metals in nature.—The general principles of metallurgy processes.—Fuel.—Furnaces.—The noble metals.—The base metals.—Alloys and amalgams.—Principles of electro-metallurgy.—Discrimination of metals, &c.

DENTAL MECHANICS, by HARRY ROSE, L.D.S. Eng. On Mondays at 7 p.m., during January, February, and March.

The subjects of this course will be treated in the following order:—Preparation of the Mouth for the reception of Artificial Teeth.—The Dental Laboratory, with a description of the agents and materials employed therein. The Materials used for Impressions and the methods of their Application.—Casting in Plaster and Metal.—The Application and Description of Precious and other Metals used in Mechanical Dentistry.—On the various forms of Porcelain, with a description of the processes necessary for the production of Mineral Teeth.—Plastic Bases, viz. Vulcanite, Celluloid, &c.—Mechanical Treatment of Dental Irregularities.

DEMONSTRATIONS ON DENTAL MECHANICS, by W. ROBINSON HUMBY, L.D.S. Eng. On Wednesdays at 7 p.m., during January, February, and March. (Free to Students of the College.)

The subjects demonstrated in this course will be those practical points which are treated in a more theoretical manner by the Lecturer on Dental Mechanics. The Lecturer and the Demonstrator thereby work conjointly and harmoniously.

DEFORMITIES OF THE MOUTH AND THEIR TREATMENT, by OAKLEY COLES, L.D.S. Eng. On Fridays at 8 p.m., during February and March. (Free to Students of the College.)

In these Lectures the following subjects will be considered :

CONGENITAL DEFORMITIES.—Origin of Cleft Palate; theory of its Transmission from Parent to Offspring. Anatomy and Physiology of Cleft Palate. Troubles arising from Cleft Palate. Their Surgical and Mechanical Treatment.

ACQUIRED DEFORMITIES.—Resulting from Syphilis. Mechanical Injury. Gunshot Wounds, &c. Their Surgical and Mechanical Treatment. The Course will be illustrated by diagrams, models, and preparations. The construction of mechanical appliances will receive special consideration.

Summer Session, 1882.

DENTAL SURGERY AND PATHOLOGY. On Tuesdays and Fridays at 8.30 a.m. during May, June, and July.

The subjects of this Course will be considered in the following order :—*Inflammation* : Its symptoms, initial changes, causes, terminations, principles of treatment.—*Special Forms of Inflammation* : affecting the mouth and gums; catarrhal, herpetic, mercurial, croupous, phlegmonous, suppurative, acute œdematous.—*Inflammation of Special Tissues* : Pulp, periosteum mucous membrane of antrum.—*Atrophies* : Pulp, periosteum, alveolus, gums, dentine, cementum. Abrasions. Erosion. The atrophy of pregnancy.—*Caries and Necrosis* of teeth and jaws. Symptoms, Causes, and Treatment of.—*Hypertrophies* : Pulp—polypus, sensitive sprouting. Gum—Transparent hypertrophy of, congenital hypertrophy of. Periosteum—Polypus of. Jaws and alveolus. Tooth structures—exostosis, inostosis. Odontomes.—**NEW FORMATIONS** : Tumours, Odontomes, varieties and classification of.—**ACCIDENTS AND DISEASES OF JAWS AND ADJACENT STRUCTURES** : Foreign bodies in antrum, abscess of antrum, &c. Dislocation, fracture and closure of jaws. Surgery of lips, jaws and palate. Syphilitic affections in their influence upon the teeth and surrounding tissues. Neuralgia. Anæsthetics.—*Irregularities of Teeth* as regards form, period of eruption, and position. The Lectures will be illustrated by diagrams, models, and microscopic preparations.

ELEMENTS OF HISTOLOGY, by THOMAS GADDES, L.D.S. Eng. and Edin. On Wednesdays and Fridays at 7 p.m., during May and June. (Free to Students of the College.)

The object of this Course is to give an account of the minute structure and development of the simple tissues of the body, and to prepare the student for the Course on Dental Anatomy and Physiology. The subjects comprised in the Course are fully illustrated by diagrams, drawings, and microscopic specimens, and are treated in the following order :—*Introduction* : Life and its characteristics.—*Death* : Local, physiological, and general or systemic death.—*Cells* : Structure, cell-wall, function, multiplication.—*Blood* : Fluid, cells, granules.—*Epithelium* : Squamous, columnar, spheroidal, ciliated.—*Connective tissue* : Areolar, white-fibrous, yellow-elastic.—*Cartilage* : Temporary, permanent.—*Bone* : Spongy, compact; formation and absorption of Haversian systems.—*Muscle* : Striped and unstriped.—*Blood-vessels* : Arteries, capillaries, veins.—*Mucous membrane*.—*Skin and its appendages*.—*Glands* : Salivary, gastric, mucous.—*Secretion* : By glands, by membrane.—*Absorption* : By glands, by osmosis.

ARTS AND LITERATURE CLASS, conducted by the Rev. H. R. BELCHER, L.L.D., M.A.

The arrangements for this Class will vary according to the requirements of the Students entering.

FEES.

GENERAL FEE FOR SPECIAL LECTURES REQUIRED BY THE CURRICULUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—£12 12s.

<i>Fees to Single Courses.</i>	<i>One Course.</i>		<i>Two Courses.</i>	
Dental Anatomy and Physiology ...	£2	12 6	£4	4 0
Dental Surgery and Pathology ...	2	12 6	4	4 0
Dental Mechanics ...	2	12 6	4	4 0
Dental Metallurgy ...	3	3 0	5	5 0
*Operative Dental Surgery...	2	2 0		
*Elements of Histology ...	1	1 0		
*Demonstrations on Dental Mechanics ...	1	1 0		
*Deformities of the Mouth...	2	2 0		

Arts and Literature Class (three months), £3 3s. Hospital Practice, to Registered Practitioners (six months), £7 7s. Ditto (twelve months), £9 9s.

Fee for the two years' Hospital Practice required by the Curriculum, £12 12s.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, £25 4s.

PRIZES.

Five Prizes, in Medals, are open for competition among the Students of the College at the end of each Course of Lectures on the following subjects, viz. Dental Anatomy, Dental Surgery, Dental Mechanics, Metallurgy, and Operative Dental Surgery.

Certificates of Honour will be awarded to those Students who show superior proficiency in any of the classes.

The *Rymer Gold Medal for General Proficiency*, value £5, will be awarded annually to the most distinguished Student of the year. His general conduct and attendance must have been in every respect satisfactory. At the time of the special examination for the Rymer Medal the Student must not hold any qualification. The Medal will be awarded on the understanding that the Student completes the Dental curriculum.

The Public Distribution of Prizes will take place at the commencement of the Summer Session.

GENERAL HOSPITALS.

CHARING CROSS HOSPITAL.

Dental Surgeon, J. Fairbank, M.R.C.S., who attends at the Hospital three days a week for Dental operations. A course of Lectures on Dental Surgery is also given during the summer months.

The fee at this hospital for the L.D.S. Course is £42 2s., which may be paid in two instalments; this includes the matriculation fee of £2 2s., for which the student enjoys all the privileges of a matriculated student, which are as follows:

- 1st. They pay a proportionately lower amount of fees.
- 2nd. They alone are eligible for the following offices and appointments:—Resident medical officer, resident surgical officer, resident accoucheur, assistant demonstrator, pathological assistant, clinical clerks, dressers, Dentist's assistant.
- 3rd. They are admitted to the use of the library and reading rooms.
- 4th. They are admitted, without additional fee, to the special courses of practical instruction in clinical medicine, clinical surgery, and in bandaging, as well as to the clinical and pathological demonstrations, and enjoy other advantages.
- 5th. They alone are entitled to compete for the scholarships.

* These Lectures are free to Students of the College who have fully entered for the Special Lectures.

The attention of Dental students is drawn to the re-arrangements which have been made in the hours of Lectures.

For further information apply to the Dean, Francis Hird, Esq., at the hospital.

GUY'S HOSPITAL MEDICAL AND SURGICAL SCHOOL.

Dental Surgeon, H. Moon, M.R.C.S., L.D.S.

Dressers are appointed to the Dental Surgeon, and hold office for two months, each receiving special certificates.

Practical instruction in Dental Surgery is given every Tuesday at 1.30 and Thursday at 12.30 o'clock. A certain number of cases of cleft palate, perforate palate, irregularities, lost portions of jaw, &c., are constantly under treatment for the instruction of students, the necessary apparatus being supplied at the expense of the hospital.

A course of Lectures on Dental Surgery is delivered during the Summer Session, and special instruction is given on this subject in the Surgery, by Mr. Moon, throughout the year.

Application respecting the School may be made to the Dean, Dr. F. Taylor.

LONDON HOSPITAL MEDICAL COLLEGE.

Dental Surgeon, Ashley Barrett, M.B. Lond., M.R.C.S.

The Council of the College of Surgeons recognise the Dental Department of the London Hospital as a school at which may be obtained the Dental Practice necessary to qualify a student for the Examination for the Dental Diploma. Dental students may obtain the General Medical Education (that is, apart from certain Special Lectures to be attended at a Dental School) and the Dental Practice, necessary for the Diploma, at the London Hospital School, on payment of 40 guineas.

A course of Lectures on the Anatomy and Pathology of the Teeth, and Dental Surgery, will be delivered by Mr. Ashley Barrett on days which will be duly announced. It comprises the Form and Arrangement of the Dental Organs; Structure of the Human Tooth; its mode of development; Abnormalities and Irregularities of the Teeth, with the mode of treating the latter; Dental Caries, and its treatment; Periodontitis, its cause and treatment. Mr. Barrett gives practical instruction on Tuesdays at 9 a.m., which is open to all students of the School and Hospital, and can be attended by gentlemen who are not pupils, on payment of a fee of 10 guineas.

A *Dental Assistant* is elected every three months, without any additional expense. The terms of office date from the first Tuesday in January, April, July, and October. In selecting Candidates priority will be given to those who have attended the greatest number of Lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the Dental Department on Tuesday mornings.

Further information may be obtained on application addressed to Ashley Barrett, Esq., 42, Finsbury Square, E.C., or to Mr. Munro Scott, Medical College, London Hospital.

MIDDLESEX HOSPITAL.

Consulting Dental Surgeon, J. Tomes, F.R.S., M.R.C.S., L.D.S.

Dental Surgeon, J. S. Turner, M.R.C.S., L.D.S.

Assistant Dental Surgeon, W. Storer Bennett, M.R.C.S., L.R.C.P., L.D.S.

Students who intend to become Licentiates in Dental Surgery of the Royal College of Surgeons are admitted to attend the requisite courses of Lectures and Hospital Practice on payment of a fee of 40 guineas, in one payment, or by instalments of £30 on entrance, and £15 at the beginning of the second Winter Session.

A short course of Lectures on Dental Surgery will be delivered during November and December by the Lecturer on Dental Surgery, Mr. J. S. Turner. The Lectures will be supplemented by practical demonstrations, which will be given every week during the Winter and Summer Sessions by the Dental Surgeon and Assistant Dental Surgeon. Students of the hospital free, others pay a fee of 5 guineas.

Further information may be obtained from Andrew Clark, Esq., the Dean, or from the Resident Medical Officer at the hospital.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

Dental Surgeon and Lecturer, Alfred Coleman, F.R.C.S., L.D.S. Eng.

Assistant Dental Surgeons, Isidore J. Lyons, M.R.C.S., L.D.S., and Francis Ewbank, M.R.C.S., L.S.A.

The Dental Department of the hospital is open on Tuesday and Friday mornings at 9 o'clock. The practice of the department is recognised by the Royal College of Surgeons.

Lectures on Dental Surgery, Anatomy, Physiology, and Pathology, on Saturdays, at 10.30 a.m., during the months of October, November, and December; the fee for one course is £2 12s. 6d., unlimited £4 4s. These Lectures are recognised by the Royal College of Surgeons as a course of Dental Surgery required for the Dental Diploma.

The fee for general subjects for Dental students for the first winter is £33 2s. 6d., for the first summer £33 2s. 6d., or a single payment of £66 3s.

This hospital is the oldest and one of the largest in London, and among many other advantages which it offers the student is that provision is made for their residence in the College, on the recommendation of a medical officer of the hospital. For the terms of board and residence and all other information regarding the College, application should be made, either personally or by letter, to the Warden of the College, Dr. Moore.

ST. GEORGE'S HOSPITAL.

Dental Surgeon, A. Winterbottom, F.R.C.S., L.D.S.

Mr. Winterbottom attends at the hospital on Tuesdays and Saturdays at 9 a.m.

A course of Lectures on Dental Surgery is given by Mr. Winterbottom in the Summer Session. Free to students of the hospital.

Fee for general subjects in Dental Surgery, including Practical Chemistry, £55. Payable in two instalments: First year, £30; second year, £25.

Further information can be obtained by application to Dr. Wadham, Dean of the Medical School.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

Dental Surgeon, H. Howard Hayward, M.R.C.S., L.D.S.

Practical instruction in Dental operations is given on Wednesdays and Saturdays at 9.30 a.m. Dressers are appointed who hold office for three months. Also a special course of Lectures on Dental Surgery.

Fee for the course £2 12s. 6d.

Further information may be obtained by application to A. B. Shepherd, M.D., Dean of the School. (See Advertisement.)

UNIVERSITY COLLEGE HOSPITAL.

Dental Surgeon, G. A. Ibbetson, F.R.C.S., L.D.S.

Mr. Ibbetson gives a course of Twelve Lectures at University College on Mondays and Thursdays, at 4 p.m., beginning in January. Fee £2 2s. These Lectures on Dental Surgery are recognised by the Royal College of Surgeons as qualifying for the Diploma in Dental Surgery. A silver medal in this class is awarded to the most proficient student.

Lectures on Clinical Surgery, once a fortnight or oftener, by Professor Marshall and Professor Hill; Mr. Erichsen and Sir Henry Thompson, Emeritus Professors of Clinical Surgery, will deliver short Courses during the Session.

Mr. Christopher Heath, the Holme Professor of Clinical Surgery, will give a Clinical Lecture, and also hold a clinical examination on surgical cases once a week.

Mr. Marcus Beck, M.S., M.B., and Mr. Arthur E. Barker, the Assistant Professors of Clinical Surgery, will also hold written and *vis à voce* examinations of the students throughout the year, and during May, June, and July, will

instruct the second year's students in the observation and examination of patients twice a week as required by the Royal College of Surgeons.

ST. THOMAS'S HOSPITAL.

Dental Surgeon, John W. Elliott, M.R.C.S., L.D.S.

Assistant Dental Surgeon, William Gill Ranger, M.R.C.S.

Gentlemen may receive instruction in diseases of the teeth, are appointed dressers, and can undertake operations, subject to the supervision of the Dental Surgeons, on Tuesdays and Fridays at 10 a.m.

Numerous cases of irregularity of the teeth, stoppings, and the application of artificial appliances are undertaken during each term.

The fee for attendance on the *general* subjects required of students in Dental Surgery is for the two years £55, or by instalments, £50 for the first year and £10 for the second year.

For further information apply to Dr. Gillespie, Medical Secretary.

WESTMINSTER HOSPITAL.

Dental Surgeon, J. Walker, M.D., M.R.C.S., L.D.S.

Dr. Walker attends at 9 a.m. on Wednesdays and Saturdays for practical demonstration of diseases and operations on the teeth. A second Dental Surgeon will be appointed.

The fee for attendance on the Dental Practice is £2 2s. for three months and £3 3s. for six months. The whole of the General Lectures and Surgical Practice required for the Dental Diploma of the College of Surgeons can be attended for £50, in one sum, on entrance, or for two sums of £32 10s. and £20, payable at the beginning of each year.

Dr. Walker will deliver a course of Lectures on Dental Surgery and Pathology on Wednesdays, in October, November, and December, at 9.30 a.m.

Classes in Metallurgy in its application to Dental purposes, Dental Anatomy and Physiology, and in Dental Mechanics, will be formed should a sufficient number of students give in their names.

The Calendar will be forwarded on application to Dr. W. H. Allchin, Dean of the School, who will afford every information.

EDINBURGH.

DENTAL HOSPITAL AND SCHOOL.

HOSPITAL STAFF.

Consulting Officers.

ALEX. PEDDIE, M.D., F.R.C.P.E.	.	.	.	<i>Physician.</i>
Professor SPENCE, F.R.C.S.E.	.	.	.	<i>Surgeon.</i>
Dr. JOHN SMITH, F.R.C.S.E.	.	.	.	<i>Surgeon Dentist.</i>

Dental Surgeons.

CHARLES MATTHEW, L.D.S.	MATTHEW FINLAYSON.
JOHN T. CUNNINGHAM, L.D.S.	ANDREW WILSON, L.D.S.
WILLIAM BOWMAN MACLEOD, L.D.S.	GEORGE W. WATSON, L.D.S.
MALCOLM MACGREGOR, L.D.S.	

Assistant Dental Surgeons.

EDWIN A. CORMACK, L.D.S., Ed.	JAMES MACKINTOSH.
J. STEWART DURWARD, L.D.S., Ed.	JAMES LINDSAY.
JAMES COOPER.	W. FORRESTER.

Honorary Treasurer and Dean.

WM. BOWMAN MACLEOD, L.D.S., 43, George Square.

The Hospital (30, Chambers Street) is in close proximity to the University, the Royal Infirmary, and the other Medical and Surgical Schools of Edinburgh. The Directors have secured the services of an efficient staff of

Dental Officers and Lecturers, and in addition to the special subjects required by the Curriculum there will be a Class for Demonstrations in Gold Filling, and a Course of Demonstrations in Mechanical Dentistry. To these subjects such additions will be made from time to time as the requirements of Dental Education may necessitate.

The following is the course of study recommended for the guidance of those intending to follow the profession of Dental Surgeon:

1. Pass Preliminary Examination recognised by one or other of the Licensing Bodies.

2. Serve three years at least in the Mechanical Department under a Registered Dentist.

After which commence Surgical and Dento-Surgical studies as under.

FIRST WINTER SESSION.—Dental Hospital, 9 to 10; Chemistry, 10 to 11; Physiology, 11 to 12; Anatomy, 1 to 2; Dissections, 12 to 1 and 2 to 4; Demonstrations, 4 to 5.

FIRST SUMMER SESSION.—Hospital, 9 to 10; Practical Chemistry, 10 to 11; Dissections and Demonstrations, 11 to 4; Gold Clinics, 8 a.m., Monday and Thursday.

First Professional Examination at end of July—Fee, £4 4s.

SECOND WINTER SESSION.—Hospital, 9 to 10; Surgery, 10 to 11; Infirmary, 12 to 1; Medicine, 3 to 4; Dental Anatomy, 8 to 9 p.m. every Monday and Friday; Dental Mechanics, 8 to 9 p.m. on Wednesdays.

SECOND SUMMER SESSION.—Materia Medica, 9 to 10; Infirmary, 12 to 1; Dental Surgery, 8 to 9 p.m. every Tuesday and Friday.

Final Examination end of July—Fee, £6 6s.

MINIMUM COST OF EDUCATION.—First Winter, £29 14s.; First Summer, £5 5s.; Second Winter, £19 6s.; Second Summer, £6 10s.; Total £60 15s.

EXAMINATIONS.—Preliminary, 10s.; Professional, £10 10s.—£11; Total cost, £71 15s.

HOSPITAL DEMONSTRATIONS.—The Dental Officers will give Demonstrations to the Students during the Session on cases selected from time to time. The Students will have an opportunity of witnessing operations under Anæsthetics between 10 and 11 o'clock.

HOSPITAL PRACTICE.—The Hospital Practice includes Extractions, Stopplings, Regulating Cases, &c., which will be undertaken by the Senior Students, under the supervision of the Dental Surgeons in attendance. Students must provide their own Stopping instruments.

DENTAL SCHOOL.

LECTURES.

DENTAL ANATOMY AND PHYSIOLOGY (Human and Comparative), by A. WILSON, L.D.S. (Edin.).—These Lectures will be delivered on the Evenings of Monday and Friday, at 8 o'clock, commencing on 7th November, 1881. The Course, consisting of twenty-four Lectures, will be illustrated by preparations, models, diagrams, microscopical specimens, &c.

DENTAL SURGERY AND PATHOLOGY, by GEORGE W. WATSON, L.D.S. (Edin.).—These Lectures will be delivered on the Evenings of Tuesday and Friday, at 8 o'clock, during the Summer Session, commencing 2nd May, 1882. The Course, consisting of twenty Lectures, will be illustrated by preparations, models, diagrams, microscopical preparations, &c.

MECHANICAL DENTISTRY, by W. BOWMAN MACLEOD, L.D.S. (Edin.).—The Lectures will commence on 9th November, 1881, at 8 p.m., and be continued every Wednesday thereafter till the Course of at least twelve Lectures is concluded.

PRACTICAL MECHANICS, Assistant Demonstrator J. STEWART DURWARD, L.D.S. (Edin.).—In addition to the Systematic Lectures there will be given during the Session Demonstrations on Dental Mechanics, and each Student will be expected to prepare the mouth, take the impression, make the denture, and insert the same in at least four cases. The Demonstrations will be spread over the two years of Hospital practice, and will be given as occasion serves. Students will require to furnish their own hand tools.

GOLD FILLING, by C. MATTHEW, L.D.S. (Edin.).—In this Class Senior Students will receive instruction in various methods of Gold Filling, &c. The Course, consisting of ten Demonstrations, will commence on the first Monday of May, 1882, at 8 a.m., and be continued every Monday and Thursday thereafter till the Course is completed.

In the various classes prizes will be offered for competition.

GENERAL FEE FOR THE HOSPITAL PRACTICE AND SPECIAL LECTURES REQUIRED BY THE CURRICULUM.—Hospital Practice, including one course of Demonstrations in Gold Filling, £15 15s. One course each of Dental Anatomy, Dental Surgery, and Mechanical Dentistry and Demonstrations, £9 15s.—£25 10s.

FEES TO SEPARATE CLASSES.—Dental Anatomy, Dental Surgery, Mechanical Dentistry, Gold Filling, £3 5s. each.

The Hospital Practice and Lectures qualify for the Dental Diplomas of the Royal College of Surgeons, Edinburgh, and also for that of the other Licensing Bodies. Second courses of the Lectures, as required by the Royal College of Surgeons of England, £2 4s.

For further information apply to the Dean, who will be found at the Hospital every Wednesday morning between 9 and 10 o'clock.

GLASGOW.

DENTAL HOSPITAL AND SCHOOL, ANDERSON'S COLLEGE.

HOSPITAL STAFF.

Hon. Consulting Physician.—Professor CHARTERIS, M.D., &c.

Hon. Consulting Surgeon.—Professor MORTON, M.D., &c.

Chloroformist.—WILLIAM MUIR, M.B., C.M.

Dental Surgeons.

GEORGE BUCHANAN.

JAMES CUMMING, L.D.S.F.P.S.G.

W. S. WOODBURN, L.D.S.F.P.S.G.

JOHN FOULDS, L.D.S.F.P.S.G.

JOHN AUSTIN BIGGS.

J. R. BROWNIE, L.D.S., R.C.S.

Eng.

DAVID TAYLOR, M.B., C.M.

Dental House Surgeon.—A. B. YOUNG, L.D.S.

The Hospital is open daily, except Sunday, at 8 a.m., and patients are received till 10 o'clock. *Anæsthetics* administered, when required, at 9 a.m.

The work of the Hospital is conducted, as far as possible, by the Students, under the supervision of the Dental Officer of the day. Cases of special interest will be made the subject of clinical instruction or demonstration as they occur.

The practice of the Hospital may be entered upon at any time during the Session, and attendance dated therefrom. Fee for the two years' practice required by the curriculum, £10 10s. Fee for each course of Lectures, £2 2s.

THE DENTAL STUDENTS' SOCIETY meets once a month in the Committee Room of the Hospital, when papers on subjects of interest are read and discussed by the Members.

DENTAL SCHOOL.

Secretary to the Dental Lecturers.—DAVID TAYLOR, M.B., C.M., L.D.S. Glasg.

DENTAL ANATOMY AND PHYSIOLOGY, HUMAN AND COMPARATIVE, by DAVID TAYLOR, M.B., C.M., L.D.S. Glasg.

The Lectures will be delivered in the Summer Session, on the Mornings of Wednesday and Friday, at 8 a.m., and will be illustrated by Diagrams, Preparations, and Microscopic Specimens. Text-Book—Tomes's Manual of Dental Anatomy, Human and Comparative.

DENTAL SURGERY AND PATHOLOGY, by JAMES RANKIN BROWNLIE, L.D.S. Eng.

These Lectures are delivered on Tuesdays and Thursdays, during the Months of May and June, at 8 a.m., and are illustrated by recent Specimens, and other Preparations, and Drawings, &c. Text-Books—Tomes's Manual of Dental Surgery; Salter's Dental Pathology and Surgery; Harris's Principles and Practice of Dentistry.

MECHANICAL DENTISTRY, by W. S. WOODBURN, L.D.S. Glasg.

This Course will commence on the first Thursday of October, at 8 o'clock p.m., and will consist of 12 Lectures, with Practical Demonstrations in the Dental Laboratory.

All communications on matters relating to the Dental School should be addressed to Dr. DAVID TAYLOR, 144, Wellington Street, Glasgow, who will forward detailed Prospectus of the School.

DUBLIN.

DENTAL HOSPITAL AND SCHOOL OF DENTAL SURGERY, BERESFORD PLACE.

Consulting Physicians.

THOMAS HAYDEN, F.K.Q.C.P.I. | GEORGE F. DUFFEY, F.K.Q.C.P.I.

Consulting Surgeons.

EDWARD D. MAPOTHER, M.D. | HENRY GRAY CROLY F.R.C.S.I.

Dental Surgeons.

MARK J. BLOOM, D.D.S.R.C.S.I. | HENRY SHERLOCK, F.R.C.S.I.
J. H. LONGFORD, L.D.S.R.C.S.I. | F. TAYLOR, L.D.S.I.

Hon. Treasurer.—J. H. LONGFORD.

Hon Secretary.—H. G. SHERLOCK, F.R.C.S.I.

This Hospital is visited daily at 9.30; practical instruction is given in all branches of Dental Surgery, and Clinical Lectures are delivered in conformity with the Curriculum of the Royal College of Surgeons of Ireland. The Fee is £3 3s. for one Session, and £5 5s. for two. After the October examinations for the L.D.S.I., the rules with regard to teaching will be revised.

BIRMINGHAM.

DENTAL HOSPITAL AND SCHOOL.

HOSPITAL STAFF.

Hon. Consulting Physician.—JAMES SAWYER, M.D. Lond., M.R.C.P.

Hon. Consulting Surgeon.—JAMES WEST, F.R.C.S.

Hon. Consulting Dentists.

THOMAS ENGLISH. | ADAMS PARKER, L.D.S., R.C.S.

Administrator of Anæsthetics.—F. H. MABERLEY, M.R.C.S.

Dental Surgeons.

Days of Attendance.

CHARLES SIMS, L.D.S.R.C.S. Eng. Wednesdays.

H. BREWARD NEALE, L.D.S.R.C.S.I. Thursdays.

F. R. BATCHELOR, L.D.S.R.C.S.I. Mondays and Fridays.

F. E. HUXLEY, M.R.C.S. Eng. & L.D.S. Edin... Tuesdays and Saturdays.

Hon. Secretary to the Surgical Committee.—H. BREWARD NEALE.

Hospital Practice at this Institution is now recognised by the Royal College of Surgeons of England for the special Dental Practice required for the

L.D.S. Diploma, and the arrangements with Queen's College and the Birmingham Clinical Board have been satisfactorily concluded, and the Birmingham Dental School established in connection with this Institution. Students are now fulfilling the curricula required for the Dental Diploma of any of the Licensing bodies.

The Special and General Lectures are given at the Queen's College, and the General Hospital Practice by the Birmingham Clinical Board, whilst the Special Hospital Practice is given at the Birmingham Dental Hospital which is open daily at 9 a.m., when courses of Demonstration are given by members of the Staff.

LECTURES.

DENTAL ANATOMY AND PHYSIOLOGY (Human and Comparative), by F. ROBERT BATCHELOR, L.D.S., R.C.S.I.—Thursday, at 5 p.m.

DENTAL SURGERY AND PATHOLOGY, by THOMAS HOWKINS, M.R.C.S.—Friday, at 5 p.m.

DENTAL MECHANICS, by CHARLES SIMS, L.D.S., R.C.S.E.—Wednesday, at 6 p.m., during the Summer Session. The course is illustrated by practical demonstrations.

DENTAL METALLURGY, by A. BOSTOCK HILL, M.D., F.I.C.—Monday, Tuesday, Thursday, and Friday, at 1 p.m., during January, February, and March.

The Fees are as follows :

Composition Fee for the whole of the Lectures and Hospital Practice, Special and General, required for L.D.S. Diploma, 75 guineas.

Dental Hospital Practice, if included in the Composition Fee, £11 11 0 for the necessary 2 years.

If taken separately, 2 years £14 14 0

„ „ 1 year 8 8 0

„ „ 6 months 5 5 0

For further information connected with the School apply to the Dental Secretary, H. BREWARD NEALE, Esq., 71, Newhall Street.

LIVERPOOL.

DENTAL HOSPITAL, MOUNT PLEASANT.

Consulting Physician.—JOHN MACNAUGHT, M.D., F.R.C.P.

Consulting Surgeon.—W. MITCHELL BANKS, M.D., F.R.C.S.

Consulting Dental Surgeons.

W. J. NEWMAN, L.D.S.I., and R. E. STEWART, L.D.S. Eng.

Dental Surgeons.

THOMAS F. AUSTIN.

WILLIAM T. BRYAN.

JAS. B. LLOYD.

W. H. WAITE, D.D.S., L.D.S.I.

J. G. ROBERTS, L.D.S.I.

D. DOFSON, L.D.S.I.

Assistant Dental Surgeons.—CHAS T. STEWART, and E. A. COUNCELL, L.D.S. Eng.

This Hospital is a School of Practical Dental Surgery duly recognised by the Royal College of Surgeons and open to all Students of Dentistry, under such regulations as shall be determined by the Committee of Management.

The Hospital is open daily for the admission of patients at 9 a.m.

Fees for Hospital practice £10 10s. per annum.

Further information may be obtained by applying to the Honorary Secretary, W. L. JACKSON, 10, South John Street.

PLYMOUTH.

DENTAL DISPENSARY, OCTAGON.

Physician.—C. ALBERT HINGSTON, M.D. Lond.*Surgeons.*

CHRISTOPHER BULTEEL, F.R.C.S. | CONNELL WHIPPLE, M.R.C.S.

Consulting Dentists.

STRATTON J. COLES. | F. A. JEWERS.

Dental Surgeons.

W. V. MOORE, D.L.R.C.S.E.	ROBT. STRATTON COLES, L.D.S.I.
C. SPENCE BATE, F.R.S., D.L.R.C.S.E.,	ERNEST E. JEWERS, L.D.S. Eng.
&c.	HAMBLY ALFRED GEORGE, L.D.S.I.
FRANCIS H. BALKWILL, D.L.R.C.S.E.	

Treasurer.—ALFRED PAYNE BALKWILL.

The dentists attend, at 9 o'clock, on Mondays, Wednesdays, Thursdays, and Saturdays.

DENTAL SCHOOL.

Certificates of attendance on the practice of this Dental Dispensary are recognised by the College of Surgeons as qualifying for the Diploma in Dental Surgery. The College also recognises the lectures delivered at the Dispensary.

Pupils of any of the Dental Surgeons of the Plymouth Dental Dispensary, or other Dentists holding a Diploma of the College of Surgeons, or Member of the Odontological Society, may attend the Dispensary on the day of such practitioner as may agree to accept such pupil or pupils, on the payment of £1 1s. per annum to the institution.

LECTURES.

On "Dental Physiology," by C. SPENCE BATE, F.R.S., L.D.S., R.C.S.E.

On "Dental Anatomy," by F. H. BALKWILL, L.D.S., R.C.S.E.

On "Dental Mechanics," by W. V. MOORE, L.D.S., R.C.S.E.

Fee to Lectures, one Course, £7 7s.

Fee to Lectures, double Course, £12 12s. (required for Diploma).

Fee to Dental Practice at Dispensary, £5 5s. per annum.

Fee to entire Dental Curriculum (required for Diploma), 22 Guineas.

Further information may be obtained from the Secretary, E. G. BENNETT, Esq.

EXETER.

DENTAL HOSPITAL.

Consulting Surgeons.

A. J. CUMMING, F.R.C.S. Eng. | C. H. ROPER, M.R.C.S. Eng.

Surgeon-Administrator of Anæsthetics.—W. A. BUDD, M.R.C.S. Eng.*Dental Surgeons.*

J. T. BROWNE-MASON, L.D.S. Eng. | C. NORMAN KING, L.D.S.I.

S. BEVAN FOX, L.D.S. Eng. | AUGUSTUS KING, L.D.S.I.

HENRY BIGING MASON, L.D.S. Eng. | T. G. T. GARLAND, L.D.S.I.

Honorary Secretary.—HENRY B. MASON.

Attendance on the Practice of this Hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental Diploma.

The Hospital is opened daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 a.m.

Pupils of any member of the staff, or other Registered Practitioner (being a Life or Annual Governor), are permitted to attend the practice of the Hospital, subject to the approval of the Medical Sub-Committee, on pay-

ment of Five Guineas annually to the funds of the Institution. Students attending the practice of the Hospital must consider themselves strictly under the control of the Medical Officers, and must not undertake any operation without the consent of the Dental Surgeon for the day.

III.—SCIENTIFIC ASSOCIATIONS.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

President.—Thomas Arnold Rogers.

Vice-Presidents.

RESIDENT.

Joseph Walker.
J. Smith Turner.
Charles S. Tomes.

NON-RESIDENT.

Alfred O'Meara (India).
J. E. Rose (Liverpool).
Samuel Lee Rymer (Croydon).

Treasurer.—James Parkinson.

Librarian.—Felix Weiss.

Curator.—S. J. Hutchinson.

Honorary Secretaries.

J. Howard Mummery (for Foreign
Correspondence.)

F. Canton (Council).
T. F. Ken Underwood (Society).

Councillors.

RESIDENT.—J. Oakley Coles; W. H. Woodhouse; Edwin Saunders; T. Chartres White; G. Wallis; W. F. Henry; Alfred Coleman; H. Moon; J. Stocken.

NON-RESIDENT.—W. A. Hunt (Yeovil); T. W. G. Palmer (Cheltenham); T. J. Browne-Mason (Exeter); W. Williamson (Aberdeen); J. E. Palmer (Peterboro'); William Fothergill (Darlington).

EXTRACTS FROM THE BY-LAWS.

Objects and Constitution of the Society.

This Society is instituted for the encouragement and diffusion of knowledge in Dental Surgery, and for the promotion of intercourse among members of the Dental Profession.

The Society shall consist of resident, non-resident, corresponding, and honorary members.*

1. The resident members shall consist of gentlemen practising as Dental Surgeons in London, or within ten miles of the General Post Office, St. Martin's-le-Grand.
2. The non-resident members shall consist of gentlemen practising as Dental Surgeons, residing beyond ten miles from London.
3. The corresponding members shall consist of distinguished gentlemen practising as Dental Surgeons, residing in the Colonies of Great Britain or foreign countries.
4. The honorary members shall consist of distinguished practitioners of Dental Surgery, who have retired from practice, of distinguished medical practitioners, and of gentlemen distinguished in any department of science.

Persons who advertise in the public journals or by circular, either their

* The following by-law has been recently passed but will not come into force until next year.

"That on and after November 1st, 1882, candidates for the Resident, Non-Resident, or Corresponding Membership of the Society shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery, and are also Licentiates in Dental Surgery, or qualified Practitioners of Medicine or Surgery; or possess such a Diploma or Degree as in the opinion of the Council will qualify them for the Membership of the Society."

profession or their professional attainments or public appointments, or anything relating to their mode of practice or charges, or who expose for public inspection specimens of operative or mechanical Dentistry, or conduct their practice in any way which in the opinion of the Council of this Society is derogatory to the respectability of the profession, shall not be considered eligible for nomination as members.

No person being the proprietor of a secret remedy, or holding a patent relating to the requirements of Dental practice shall be a member of this Society.

Election and admission of Resident and Non-Resident Members.

Recommendations for resident members shall be signed by two members from personal knowledge, and by two or more from general knowledge. Recommendations for non-resident members may be signed by one member only from personal knowledge and by two or more from general knowledge.

All recommendations for resident or non-resident members shall be submitted to and approved of by the Council before being proposed to the Society for ballot.

Contributions of Members.

Every person elected a resident member shall pay three guineas as an admission fee, and an annual subscription of two guineas, *in advance*.

Every person elected a non-resident member shall pay two guineas as an admission fee, and an annual subscription of one guinea, *in advance*.

The entrance fees and first annual subscription shall be paid on admission, and the subsequent annual subscriptions in the month of November in each year; but new members, proposed at or after the annual meeting, shall not be required to pay any subscription for the current session.

Ordinary Meetings.

The ordinary meetings of the Society shall be held on the first Monday in each month, from November to June, both inclusive, at 8 p.m. precisely, except in the month of January.

Each member may introduce two visitors at these meetings, on writing the visitors' names in a book to be kept for that purpose. The same visitors shall not be admitted more than three times during one session.

Annual General Meeting.

The annual general meeting of the Society for the election of the officers and councillors, &c., shall be held on the evening of the second Monday in January every year.

Society's Transactions.

The Transactions of the Society, under the designation of 'Transactions of the Odontological Society of Great Britain,' shall be printed at such times and in such manner as the Council shall direct.

The 'Transactions' shall be presented to all resident and non-resident members of the Society, who have paid their annual subscriptions.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

President.—J. Smith, M.D., F.R.C.S. Ed.

Vice-Presidents.

A. Wilson, L.D.S. Ed.

Joseph Walker, M.D., L.D.S. Eng. (Lond.).

Treasurer.—Matthew Finlayson.

Secretary.—Wm. Bowman Macleod, L.D.S. Edin.

Curator and Librarian.—G. W. Watson, L.D.S. Edin.

Council.

Walter Campbell, L.D.S. Eng. (Dundee).

Leon J. Platt, L.D.S. Edin. (Stirling).

Malcolm MacGregor, L.D.S. Edin.

Austin Biggs, Glasgow.

Ordinary Meetings.

The Society meets on the second Thursdays of November, December, January, and February, and the 13th March.

EXTRACTS FROM THE CONSTITUTION AND LAWS.

Name and Objects.

The Society shall be named the "Odonto-Chirurgical Society," and shall have for its objects the Promotion and Diffusion of Knowledge in matters connected with Dental Surgery; the furtherance of communications on such subjects by Members of the Society; and otherwise to advance the interests of Dental Surgery as a branch of medicine.

Ordinary and Honorary Members.

The Society shall consist of Ordinary, Honorary, and Corresponding Members:

The Ordinary Members shall consist of Gentlemen practising as Dentists in Great Britain, and of Medical and Surgical Practitioners interested in Dental Surgery.

The Honorary and Corresponding Members shall consist of Gentlemen practising Dentistry in Great Britain, in the Colonies, or in Foreign Countries, and of retired Dental Practitioners in Britain, as well as such Medical or generally Scientific men as may have distinguished themselves in connection with Dental Surgery.

The Ordinary Members shall have vested in them the Government of the Society, and all cases not otherwise specified shall be decided by them by a majority of votes, by ballot, if required.

Obligations of Members.

No Member shall be permitted to advertise, either in the public journals or by circular, his profession, his modes of practice, or his charges. They shall not be permitted to expose specimens of their work for public inspection, nor to carry on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way which the Society may consider derogatory to the Profession, so long as they continue Members of the Society. But Members who practise in towns other than that in which they reside shall be allowed to intimate their visits; such intimations being subject to the approval of the Council.

Application for Membership.

Candidates for admission as Members of the Society shall be recommended by an Ordinary Member, and the recommendation seconded by another. After being approved by the Council, such recommendation shall be read to the Society at an Ordinary Meeting, and shall lie over till the next, when the Candidate shall be balloted for, when two thirds of the Members present must be in his favour to secure his election.

Contributions.

Ordinary Members residing within a ten mile radius of the city shall pay an Entrance Fee of One Guinea, and one Guinea of an Annual Subscription, in advance. All other Ordinary Members shall pay an Entrance Fee of One Guinea, and Ten Shillings and Sixpence of an Annual Subscription. All Annual Subscriptions to date from the 1st of March preceding the Candidate's admission.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY, 11, CHANDOS STREET, CAVENDISH SQUARE.

President.—Thomas Edgelow.

Vice-Presidents.

J. A. Baker.
W. A. N. Cattlin.
S. Cartwright.

Francis Brodie Imlach.
S. J. A. Salter, F.R.S.
Dr. Smith, F.R.S. Edin.

Treasurer.—S. Hamilton Cartwright.

Hon. Sec.—J. Hamilton Craigie.

Council.

E. Bartlett.
J. Fairbank.
F. Fox.

W. Hunt.
Chas. Gaine (Bath).
W. Ranger.

Augustus Winterbottom.

As the name implies, only those possessed of a registrable Medical or Surgical qualification are eligible for the Fellowship of this Society.

THE BRITISH DENTAL ASSOCIATION.

John Tomes, F.R.S., M.R.C.S., L.D.S. Eng., *President*.

Thomas Underwood, L.D.S. Eng., *Vice-President*.

James Parkinson, L.D.S. Eng., *Treasurer*.

J. Smith Turner, M.R.C.S., L.D.S. Eng., *Hon. Sec.*

LIST OF MEMBERS OF THE REPRESENTATIVE BOARD.

For London.

Edwin Saunders, F.R.C.S. Eng.

A. J. Woodhouse, L.D.S. Eng.

A. Coleman, F.R.C.S., L.D.S. Eng.

C. D. Roberts, L.D.S. Eng.

J. Oakley Coles, L.D.S. Eng.

C. S. Tomes, F.R.S., M.A. (Oxon.)
M.R.C.S., L.D.S. Eng.

T. A. Rogers, M.R.C.S., L.D.S. Eng.

H. Moon, M.R.C.S., L.D.S. Eng.

G. A. Ibbetson, F.R.C.S., L.D.S. Eng.

C. Vasey, L.F.P.S., L.D.S. Eng.

Henry Sewill, M.R.C.S., L.D.S. Eng.

Ashley Gibbings, M.R.C.S., L.D.S.
Eng.

W. H. Woodhouse, L.D.S.I.

S. J. Hutchinson, M.R.C.S., L.D.S.
Eng.

Alfred Hill, L.D.S. Eng.

David Hepburn, L.D.S. Eng.

For the Provinces.

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J. T. Browne-Mason, L.D.S. Eng.,
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W. J. Newman, L.D.S.I. } pool.

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W. B. Macleod, L.D.S. Edin. } burgh.

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F. A. Huet, L.D.S.I. } chester.

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S. Wormald, L.D.S.I., Stockport.

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R. White, M.R.C.S., L.D.S. Eng.,
Norwich.

T. Mahonie, L.D.S.I., Sheffield.

W. H. Nicol, L.D.S. Eng., Leeds.

Extract from Bye-Laws.

4. A person who is registered in the Dentists' Register shall be eligible for election as a member of the Association, provided that he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show-case exposed to public inspection; or by means of public advertisements, or circulars, describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

5. Any registered Dental practitioner who can subscribe to a declaration (provided by the Association) embodying the preceding Bye-law, and who shall be recommended as eligible by any three members of the Association, may be elected a member by the Representative Board or by a committee appointed for that purpose by that Board.

THE WESTERN BRANCH OF THE BRITISH DENTAL ASSOCIATION.

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G. W. Pearman, L.D.S. Eng., Torquay.

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F. Youngman, L.D.S. Eng., Torquay.

Composed of Members of the British Dental Association residing in the Counties of Cornwall, Devon, Dorset, Gloucester, Hereford, and Somerset. The Annual Meeting is held in August.

Extract from By-laws.

4. A person who is registered in the Dentists' Register shall be eligible for election as a member of the Association, provided that he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show-case exposed to public inspection; or by means of public advertisements or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

5. Any registered Dental practitioner who can subscribe to the conditions laid down in By-law 4, and who shall be recommended as eligible by any three members of the Association, may be elected a member by the Council.

THE MIDLAND BRANCH OF THE BRITISH DENTAL ASSOCIATION.

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Vice-President.—R. E. Stewart, Liverpool.

Treasurer.—S. Wormald, Stockport.

Hon. Secretary.—W. H. Waite, Liverpool.

Council.

W. H. Nicol, L.D.S. Eng., Leeds.

J. N. Manton, L.D.S. Eng., Wakefield.

Roff King, L.D.S.I., Shrewsbury.

T. Murphy, L.D.S.I., Bolton.

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D. A. Wormald, L.D.S.I., Bury.

A. W. Whittingham, L.D.S. Eng., Hanley.

Composed of Members of the British Dental Association who reside in the Midland and North Western Counties of England and of Associates who can fulfil the conditions laid down in the By-laws. The Annual Meeting takes place in April.

The By-laws are nearly identical with those given above.

THE STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE.

President.—R. H. Woodhouse, M.R.C.S., L.D.S.

Vice-Presidents.

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Treasurer.—C. Robbins, L.D.S. Eng.

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The object of the Society is the consideration of matters generally and specially appertaining to Dentistry. The affairs of the Society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, and six other members. The President is chosen from the past students who have obtained their degree of L.D.S.; the Vice-Presidents from past students, with or without qualification.

Any gentleman wishing to become a member must be proposed and seconded at one meeting, and be balloted for at the next; one black ball in four to exclude. The entrance-fee for Ordinary members is half-a-crown, and there is an annual subscription of the same amount.

Ordinary meetings are held at 7 p.m. on the second Monday in every month, from October to March inclusive. The annual meeting for the election of officers, and other business, is held in January of each year.

Every member has the power of introducing one visitor, not being a student of the Hospital or School, to the evening meetings, with the consent of the President. Visitors are allowed to take part in the discussion of the papers and clinical cases.

There is a Library in connection with the Society, the Secretaries discharging the duties of Librarians.

The Council offer a prize, value £3 3s., at the end of each year for the best paper read before the Society during that year.

STUDENTS' SOCIETY OF THE NATIONAL DENTAL HOSPITAL AND COLLEGE.

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Treasurer.—T. Mansell.

Secretaries.

T. Mansell (Council). | F. W. Bate (Society).

Council.—Messrs. J. J. Baily; W. J. Pidgeon; B. A. Williams; A. Mountford; J. S. Spain; A. J. Prager.

This Society, which was established March 15th, 1878, was constituted for the encouragement and diffusion of knowledge in Dental Science, and for the promotion of intercourse among its members, and all Students of Dental Science are eligible for Membership. All Candidates for Membership must be approved by the Council before being proposed to the Society for election. The Entrance Fee is 2s. 6d., and the Annual Subscription is 2s. 6d., to be paid in advance. The Ordinary Meetings of the Society are held on the first Friday in each month, from October to March, both exclusive, at 8 p.m. precisely. Each Member may introduce two visitors, not being Students of the Hospital or College, but the same Visitors may not be admitted more than three times during one Session.

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AN ACCOUNT OF SOME EXPERIMENTS ON THE DEVITALISATION OF THE TOOTH-PULP.*

BY JOSEPH ARKÖVY, M.D., Ch.D., Master of Dentistry,
Buda-Pesth.

THE action of two agents—arsenious acid and pepsine—was investigated in the course of these experiments. Three dogs were employed in the research, the agents being applied by the aid of an apparatus expressly constructed for the purpose by the author. The details of the experiments are fully described in the paper; the following being a brief account of the results of the inquiry.

Theoretical results.—A. *Experiments with Arsenious acid.*

—1. When arsenious acid is brought into contact with the tooth-pulp it produces a certain amount of inflammatory hyperæmia, the degree and extent of which are proportionate to the amount of the agent used. The blood-vessels become dilated to three or four times their normal diameter, and there is a tendency to extravasation, due possibly to capillary embolism, the result of rapid absorption of the agent by the circulation. 2. Arsenious acid produces no coagulation in the tissues. 3. It has a specific influence on the blood corpuscles, combining with their hæmoglobin to form arsen-hæmoglobin, a change shown in the diffused yellowish staining of the whole pulp-tissue and the discoloration of the blood in many of the vessels. 4. In nearly every case the arsenious acid is bodily absorbed into the vessels (in the form of molecules), and there produces, in addition to the

* Abstract of a Paper read before Section XII of the International Medical Congress on August 4th, 1881.

changes above-mentioned, a granular breaking up of their contents, and anæmic collapse and shrinking of the vessels themselves, a result only as a rule met with in cases where large quantities of the agent are used. 5. The bulk of the pulp-tissue, consisting of connective fibres and odontoblasts, undergoes no change whatever. The connective-tissue corpuscles, however, increase to from three to four times their normal size. 6. Arsenious acid has a special action on the nerve-elements of the pulp. The neurilemma indeed only shows some enlargement of its nuclei, but the changes in the axial portion of the nerves are more marked. There is granular breaking down of the myelin, and disappearance in parts of the axis cylinder. Still more remarkable, however, is the nodular swelling of the axis cylinder, a phenomenon hitherto almost exclusively found in connection with central lesions. 7. All these alterations occur side by side with tissues apparently unchanged. 8. To the naked eye the action of arsenious acid in the tooth-pulp consists in a partial or complete brownish-red discoloration, which also, in cases treated with larger quantities of the acid, viz. from two to five milligrammes, affects the adjacent dentine and cementum. This change is most marked at the distal extremity of the pulp, and at its apical third or fourth, and it may be regarded as an evidence of complete devitalisation. 9. The degree in which the peridental membrane is affected is proportional to the extent of the changes in the pulp, which in their turn depend upon the quantity of the agent used and the length of time that it is left in contact with the tissues. So small a quantity as one milligramme will produce a slight degree of hyperæmia. 10. If not brought into direct contact with the pulp, *e.g.* if separated from it by a thin layer of dentine, arsenious acid will not produce any of the changes mentioned, even when used in quantities of five milligrammes. If inflammation should result under these conditions it must be looked upon rather as due to the irritation of a foreign body placed contiguous to the pulp and endowed with different heat-conducting powers from the surrounding tissues. 11. Arsenious acid does not appear to exert any action upon dentine. It may indeed produce some tumefaction of the

dentinal fibrils when left in contact for a considerable time, but the hard tissue undergoes no change whatever.

B. *Experiments with Pepsine*.—1. The action of pepsine on the pulp-tissue is entirely different from that of arsenious acid. Used in large quantity (from four to five milligrammes) it produces well-marked *coagulation* of the albumen, and even one milligramme will cause a circumscribed coagulation if introduced into the substance of the pulp-tissue. 2. When large quantities are used this coagulation may extend from the point of application to the apical end of the pulp, the details of the process being as follows:—3. Hyperæmia commences at the point of application, and thence extends to the crown-pulp. At a certain distance from the drill hole (or cavity of decay) the inflammatory redness suddenly deepens, forming a line of demarcation. From this point the apical portion of the root-pulp for two thirds to one quarter of its extent, according to the quantity of the agent used, remains unaltered, the whole pulp only being destroyed when as much as five milligrammes is employed. 4. The blood-vessels are dilated to a certain degree, but their contents do not part with their pigment; in fact, the corpuscles assume a purple-red hue, due to the abstraction of their fluid by the pepsine, and the consequent concentration of their colouring matter. It is this change probably which interferes with the circulation in the pulp. 5. Hence, whenever peridental inflammation follows the use of pepsine it is to be regarded as the result of collateral hyperæmia, since it is not probable that the disintegrating action of pepsine can extend beyond the apical foramen. 6. In large quantities (four to five milligrammes) pepsine produces essential alterations in the blood-vessels and nerve-fibres. The former become collapsed and bloodless, or are the seat of fatty degeneration, while a similar degeneration affects the nerve-fibres when five milligrammes and upwards of the drug are applied. 7. Unless in close contact with the pulp pepsine produces no effect whatever. 8. The hard tissues when exposed to the action of a solution of pepsine for several days remain unaltered; possibly the dentinal fibrils disappear.

Practical deductions.—Arsenious acid and pepsine being essentially different in action, the conditions of their application must also be viewed in a different way. (1) Neither of the agents has a devitalising influence upon the pulp through the dentine; they must be used so as to be in contact with the pulp. (2) The quantities of the agents required to produce an insensible pulp are different, and their selection depends upon the quantity to be used; at the same time also the size of the individual pulp must be taken into account. (3) The smallest quantity of arsenious acid to be used is one milligramme; the largest quantity should not exceed three milligrammes. (4) The time during which the arsenious acid may remain in contact with the pulp should never exceed twenty-four hours, supposing that a quantity has been chosen corresponding to the size of the pulp. (5) A quantity of arsenious acid, not larger than one to two milligrammes, left longer than twenty-four hours in contact with the pulp will produce periodontitis; and if left still longer, osteomyelitis, periostitis, and diffuse inflammation of the surrounding soft parts may follow. (6) The swallowing of arsenious acid in such a quantity is not likely to produce any discomfort to the patient, the smallest poisonous dose being one centigramme; still care must be taken not to bring it into contact with the gum, &c. (7) Pepsine produces remarkable alterations only when larger quantities are employed and allowed to remain as long as twenty-four hours. If left for a longer space of time, for instance, two or three days, then even two or three milligrammes will do their work. In twenty-four hours not less than four to five milligrammes will be effective. (8) The smallest quantity (one milligramme) of arsenious acid is more capable of producing periodontitis in twenty-four hours than three or four times the same quantity of pepsine. (9) It will, therefore, be advisable to use this agent in every case where for any reason a speedy effect is not expected. Special indications for its use are as follows:—In the teeth of very young persons, where a large aperture of the root canal may be supposed; in persons who do not keep quiet, and in whom the accurate application of arsenious acid is impossible;

in cases where the margin of the cavity is under the level of the gum; and lastly, where the patient wishes to interrupt the operation for two or three days. (10) If either of the agents has been used, the total extirpation of the pulp must follow in due time. If the precaution of taking out the agent is omitted periodontitis will certainly follow in arsenious acid cases sooner than in pepsine cases. In the first instance directly, by the chemical action of the agent, in the second in part directly by the agent, but principally by the fungi which appear after three days have elapsed. (11) The supposed effect of arsenious acid upon the odontoblast layer, when used with the intention of producing secondary dentine, does not seem to be well founded, inasmuch as either oxygen or hydrogen is indispensably necessary for its action in this way, and neither of these gases can be present owing to the fact of the agent being enclosed between a layer of dentine and some filling material, as gutta percha. The production of secondary dentine is more probably due to the solution of continuity and the irritation of the filling.

ON TONGUE SUCKING AS A CAUSE OF PROTRUSION OF THE UPPER INCISORS.

By APPLEBY KING, L.D.S.I., Worcester.

THE ordinary causes of protrusion of the upper incisors are well known, but there is one cause of the deformity which, so far as I know, has not yet been brought under the notice of the profession. The connection between the two phenomena, protruding incisors and the habit of tongue sucking, was forced upon my attention quite by accident, under circumstances which I will briefly relate. The following cases have all been under my own immediate care; their etiology could not be traced to any of the generally known causes, and I think I shall be able to

show that they were totally due to "tongue sucking." I adopt this expression because it was the term used by the patient who first introduced the habit to me.

Some fourteen years since, Mrs. S—, of Shrewsbury, consulted me respecting her very much disfigured mouth. The roots of the teeth were exposed about the twentieth of an inch out of the gums, showing a very strong partiality to be in a line with the nose. The patient informed me that a Dentist had told her he could force them into their proper position, and she wished me to perform this operation. My patient having reached the very interesting age of forty-five, I advised her not to entertain any hope of success even if any one should attempt so absurd a treatment. Eventually consent was given for the removal of the four front teeth, which, being sound and of good colour, were reinserted on a gold plate. In making a careful examination of this mouth, I found nothing satisfactory to determine what was the cause of the deformity. After asking several questions, amongst others, I inquired whether she ever had a swollen tongue, and to my great astonishment, she informed me that she had for some years been in the habit of "sucking her tongue," and it was her opinion that the pressure of that organ on the teeth had been the cause of the mischief. There was no mistaking this fact, for upon my asking her to perform the operation (though she had abandoned the habit for some years, she had not forgotten the muscular action) the tongue was brought upon the lingual surfaces of the teeth with great force; the action being just that of an infant, but instead of the teat being present to press into the palate, the tongue otherwise directed its pressure on the four front teeth. If the mouth-piece of a feeding bottle be removed from the mouth of an infant while sleeping the exact process will be witnessed.

This case I must say rather startled me, as I had never heard of the habit before, and since that time I have been on the look-out for other cases, the result of my observations being that there are two forms of tongue sucking, a flat spreading action of the tongue, involving all the four upper incisors, and a pointed pressure when the tongue is screwed

to a point and its force directed to the two upper central teeth only.

In June, 1869, Sarah T—, of Kidderminster, came with severe toothache; I found the four upper incisors slightly protruding, a large space between the two central teeth, and slight spaces between the laterals and canines; rather a large, well-developed jaw, comparatively good teeth, general condition healthy. On my putting the question, Do you suck your tongue? the reply was, "I do not understand your meaning." Feeling convinced in my own mind that it was one of those cases I determined to follow it up. On seeing the patient's mother, and informing her of my suspicions with regard to this habit, she at once admitted "that her daughter was always at it," and wished she could break her of it. On my undertaking to do this, and assuring my patient that I could reduce the deformity, she readily consented, offering every assistance, which greatly facilitated success.

The treatment in this case was as follows:

A vulcanite plate was made covering the whole of the palate and upper molar teeth. A shield having been made in front of the lingual surfaces of the four upper incisors, a stout metal band was carried from one buccal side of the superior maxilla to the other, close to the projecting labial points of the four front teeth. The lower molars and bicusps articulated on the vulcanite plate, pressure was then obtained by forcing lint between the metal band and the projecting points of the teeth. This the patient managed most successfully herself. When the sucking commenced the teeth were protected by the shield curling up over the lingual surfaces of the four front teeth. After the teeth were brought into their proper position, much difficulty arose in getting the patient to abandon the old habit, for, though willing to give it up, the force of habit was too strong and she indulged in it without being conscious of the fact. This trouble, however, was overcome by inserting pegs in the guard and changing their position each day. The tongue discovering the altered position of the pegs was the signal to desist. Case completed in two years.

The late Mr. John Hilman, Senior Surgeon to the Kidderminster Infirmary, brought me an out-patient, a girl of 13, who sucked both thumb and tongue. The sucking in this case was pointed, *i.e.* only the tip of the tongue came in contact with the two central teeth. The thumb had been placed in the centre of the front teeth, and they were forced quite out of position. I treated this case for a few months and lost sight of it through the patient leaving the district.

I have frequently inquired of my professional brethren if they had met with any of these cases, and I have never yet found any one who had followed one up, though some admitted they had met with cases of tongue sucking.

In a report of proceedings of the Odontological Society, May 15th, 1881, Mr. Henry Sewill mentioned a case which looks to me like one of tongue sucking. Speaking of protrusion of the upper teeth, he exhibited models of a case, and observed that from his experience the disease occurred only in women, and was not noticeable before the age of twenty-five; the teeth then began to protrude but did not become loose until quite a late stage of the disease. There was no discharge from the gums, no inflammation, no wasting of the alveoli, and no similar disease of the other teeth, and he could not account for the deformity. No remark was made upon the case, with the exception of some one falling back to thumb sucking.

It is not easy to find these cases out, for I have known patients who, after denying they have indulged in this abuse, commence it the moment one's back is turned. Again, you have to be most careful in mentioning the subject, for if you ask a young lady, "Do you suck your tongue?" the reply will immediately be with an embarrassed air, "No!"

I feel sure that the habit exists to a far greater extent than is generally believed. In most cases the patient will come under observation when the injury is done, and too late to do any good. Young patients are the last to come under treatment, because there is little inconvenience to themselves, though the mischief may be great in effect. In conclusion, it must not be understood that I am trying to lay it down as a demonstrable fact that every girl found

sucking the tongue must have this deformity, or that every patient with a V-shaped jaw or protruding upper teeth must necessarily have given way at some time to the abuse I have mentioned. I have not, however, the least hesitation in saying that this is one of the causes of the deformity, and when it occurs in a limited degree, where there is a disposition to congenital weakness, the mischief is great, and the same injury may result under healthy conditions where the habit is persistent and long continued.

PROFESSIONAL FEES.

By WILLIAM HODGSKIN HOPE, Wellingboro'.

IN claiming the attention of the Dental profession to this subject, excuse may be made that the paper inserted in a recent number of this journal simply opened the way for such a ventilation of it as might in the end prove both beneficial and lasting in its effect. Its importance alone makes it a matter of great interest, and, should the deep depression at present existing in the country continue, there is little doubt it will become of still more pressing import. The object of this paper is to bring forward a few facts connected with the Dental profession, looked at purely from a commercial point of view.

It is believed by some and preached by others that Dentists should entertain such exalted opinions and have such high aspirations in their calling, that £. s. d. should be the last—the very last—consideration with them. “Work honestly, if for nothing,” is the cry of these Dental philanthropists, and if its meaning were analysed it would amount to “try to accomplish an impossibility, and starve in the attempt.” It may be well for giants in the profession to talk of “the glorious and eventful past of the profession, lasting through many hundreds of years, extending into the future, and exerting its noble influence as long as the world

shall last, the primary object of which is to relieve suffering humanity, existing purely to do good, and its very laws forbidding its professors to enrich themselves," &c. But how many would be in a position to indulge in such rhapsody, had pounds, shillings, and pence been beneath their consideration. Business men, as a rule, find it rather awkward to live when they receive no remuneration for the goods which they supply, and in the Dental profession it is to be feared there are many who occupy a similar position. It is absolutely impossible to work honestly unless an honest fee is paid for the work, and as it is perfectly certain an honest fee is not always paid, it is equally certain that the work done is not what it might be.

With regard to the regulation of fees for Dental operations, whether surgical or mechanical, innumerable difficulties are to be met with. Of course, it is impossible to dogmatise as to what ought to be the fee for certain operations, but at the same time the importance of having a fixed charge for ordinary cases cannot be over estimated. It can easily be understood that Dentists must find themselves greatly perplexed at times as to what fee to accept for an operation, and placed in an awkward position when an honest fee is charged and refused, on the ground that the same work has been done before for so much less. Yet can it be otherwise when the variety of operations and patients is taken into consideration? Take, for instance, a particular class of operations, viz. stoppings. There are, in this particular department alone, many things with regard to fees demanding consideration. This work always has been, and always will be, the most unsatisfactory that a Dentist (with a mixed practice) has to do. Two reasons will be sufficient:—1st. The extraordinary variety of conditions under which teeth have to be treated. 2nd. The unfavorable circumstances under which patients labour, and the various pecuniary positions which they occupy. Time may be said certainly to be the most valuable thing a Dentist has at his disposal, and, as a rule, there is as much time wasted over fillings as is really utilised. Time can only be charged for under peculiar circumstances, and in certain walks of life, hence the variety

of fees for such an operation even as filling a tooth. But it must be remembered that time is just as important to many of the patients of a Dentist as to the Dentist himself, and there are many to whom the filling of a tooth means great personal sacrifice, and to others no inconsiderable loss of money besides. The daily life of the patients of the majority of practitioners is such that they find it next to impossible to pay the Dentist his required number of visits in order that the work may be done satisfactorily; consequently the best-directed efforts may culminate in anything but a desirable condition. It surely, then, can be no wonder that under these numerous disadvantages, notwithstanding our knowledge of the welding properties of cohesive gold, and the facilities with which it can be worked, the numerous invaluable stoppings besides, and the number and excellence of appliances at hand, we should feel, as we do, so dissatisfied with a large portion of the work we are compelled to take in hand.

Finding, then, that there are numbers of patients who cannot afford either time or money for what is, perhaps, the proper remedial treatment, it would not only be unwise but ridiculous for Dentists to ignore the superior benefits to be derived from the mechanical part of their profession, by which they are enabled to substitute where they could not repair. "Shall we degrade the mechanical while we exalt the operative?—most decidedly not. It is a nice distinction which makes it a greater honour to work a beautiful filling in a patient's mouth (a purely mechanical operation), than to make an equally fine artificial denture at your bench." Thus wrote Dr. Taft some years ago, and at the same time pointed out the relation which the mechanical must occupy to the operative. "We may educate and educate the people to a care of their teeth as we will, but yet we cannot doubt that teeth in great numbers will be lost and their places filled by artificial substitutes."

We can no more expect the physician to so instruct his patients in the laws of health that they will no longer require his physic, than we can expect ours to save their teeth. Hence we should recommend and be able to supply to those patients

who, as we have seen, cannot for many reasons have their teeth properly filled, the very best, in the way of artificial substitutes, compatible with circumstances, and in so doing should, in the majority of cases, work a lasting benefit, not only upon the "glorious future" so often spoken about, but also upon the patient and Dentist.

ON A MODE OF OBTUNDING THE PAIN CAUSED BY
ESCHAROTICS DURING THE DEVITALISATION OF
THE TOOTH-PULP.

By EDWARD W. COX-MOORE, L.D.S.I.

I THINK that every one will agree as to the unsatisfactory nature of the results of using sedatives with the escharotic in the destruction of the tooth pulp; in fact, in one London hospital it is now the custom to apply the escharotic without any admixture, either of morphia or opium. I have been lately trying the following method, and have been encouraged by the success of the experiment to publish the following brief particulars:—After application of the escharotic and sealing the cavity loosely, the gum is thoroughly dried around the tooth and a mixture of the following: *Linim. Iodi Co.*, ʒj, *Tincturæ Opii*, ʒiv, *misce*, is freely applied with a camel-hair pencil. In addition I commonly mix with the arsenious acid used to destroy the pulp, creosote and opium, as recommended by Dr. Spooner. In twelve consecutive cases in which the above-combined process was employed, eight suffered no pain whatever, and I have reason to believe that the pain was diminished in the remaining four.

33, Great James Street, W.C.

THE next examination for the Dental diploma of the Royal College of Surgeons in Ireland (*sine curriculo*) will be held on Monday, the 31st October, and the following days. Candidates must forward the necessary certificates by the 10th inst.

Hospital Reports and Case-Book.

INFLAMMATION OF THE PULP FROM THE USE OF CHLORIDE OF ZINC.

By JOHN A. FOTHERGILL, M.R.C.S., L.D.S., Eng.

THE 'British Medical Journal' has a section headed "Our Confessional," in which practitioners relate their mishaps for the warning of others. The following is a contribution of that nature, which shows that one cannot disregard the text-book cautions against the use of chloride of zinc with impunity. A short time since a young woman called to have a second lower bicuspid filled. The cavity was a small interstitial one on the mesial surface of the tooth. There had been no aching, but considerable sensitiveness to changes of temperature. Finding the softened dentine extremely tender, I applied a pledget of amadou soaked in chloride of zinc according to custom. This caused the tooth to ache considerably. Nevertheless, it was allowed to remain in for about four minutes. After its removal the pain was soothed with chloroform and oil of cloves, and the excava-tion finished with but little trouble. The tooth was then filled with amalgam.

Next morning the patient called, saying that toothache had commenced shortly after leaving and had continued all night. The tooth was tender on percussion, and slightly loose and raised in its socket. The stopping was removed and a dressing substituted. In the afternoon she returned, still suffering great pain; various applications were tried, and a leech put on the gum opposite the apex of the fang, where there was considerable tenderness. This gave some relief. Next morning, however, she turned up again and insisted on having the tooth out as she wished to go off on a pleasure trip. I removed it with reluctance and found the pulp well protected by a thick layer of sound dentine.

On fracturing the tooth and examining the pulp with a

pocket lens, numbers of fine red lines were seen running parallel with its long axis, and at the point of one of the horns of the pulp was a little red injected spot.

I placed the pulp on a glass slide in a drop of glycerine, and then pressed it flat with a thin covering glass, and examined with a low power. The largest vessel in the field was injected with blood, and ended in what appeared to be a mass of extravasated blood. A higher power showed the patches to be composed of blood-corpuscles, and in them ended some vessels much distended with blood, and having an irregular beaded outline. Was the extravasated blood the result of the inflammation or of the pressure applied to the covering glass?

Darlington.

CASE OF SUPPURATION IN THE ANTRUM CAUSED BY ALVEOLAR ABSCESS ON CANINE FANG.

By A. J. PRAGER, L.D.S.I.

THE following are the particulars of a case which recently came under my notice :

Mr. H—, a gentleman of robust and plethoric habit, had suffered a severe nervous shock, and soon after felt an uncomfortable throbbing pain about the region of the left canine fossa, extending to the malar bone. The left cheek soon commenced to swell and assume symptoms of threatened suppuration. The patient in the first instance applied to his medical man, who ordered the application of Liq. Papaveris as a fomentation, together with tonic medicines.

When I saw the case, about three days after, the symptoms had greatly increased; the left eye was bulged up and almost closed by the swelling, and there was a purulent discharge from the left nostril. On examining the mouth I found the left upper canine and lateral teeth carious; all the others were healthy. From the carious cavity in the canine I noticed a slight purulent oozing, which the patient informed me had existed, "on and off," for some months

without giving any further inconvenience. The pain was now localised to the canine, and there was considerable swelling of the gum over that tooth. Other symptoms being present of acute alveolar abscess as well as antral suppuration, and the canine tooth being apparently the cause of the trouble, I decided upon extracting it, but my patient being in still too nervous and febrile a condition to undergo the operation, I merely punctured the swollen gum over the tooth, ordered fomentative washes, and appointed him to call in two days, meanwhile prescribing Sulphide of Calcium in one-eighth of a grain doses three times a day, with the view, if possible, to check further suppuration.

On seeing my patient again, I found the general symptoms somewhat diminished, but the cheek was still swollen and tender, and the eye in the same condition as before. The extraction of the canine was now clearly indicated to give escape to the pent-up matter ; so, with some difficulty owing to the state of the cheek, gas was administered, and I removed the tooth, also the lateral, which was carious and secondarily implicated. Much foetid purulent matter came away from the canine socket, and on passing up a probe I could readily feel it enter the antrum. The canine fang was preternaturally long, and on its apex were the remains of an abscess, which had evidently discharged into the antrum. With the removal of the cause and injections of thymol solution (1 in 200), and the usual subsequent treatment of this disease, the patient soon recovered.

In conclusion, I would remark that the alveolar abscess may have existed in a chronic and almost quiescent state for some considerable time, merely discharging at intervals, as before stated, through the pulp canal, but waiting for an opportunity to develop itself in the more aggravated form, and meanwhile working its way into the antrum, which, owing to the extreme length of the fang, would be a matter of no difficulty ; once there, the rapid accumulation of pus would soon render active measures necessary to effect its evacuation. The nervous shock and consequent constitutional disturbance of the patient may have tended to bring about this result.

British Journal of Dental Science.

LONDON, OCTOBER 1, 1881.

THE CAUSATION OF DENTAL CARIES.

AMONGST the riddles which the modern Sphinx—Science—propounds to her worshippers, there are few of more intense theoretic interest, and none of wider practical importance than the problem which confronts the Dental mind—What causes tooth-decay? Possibly the solution, when found, may be a barren one so far as practical results are concerned. But if the predisposition to dental caries should ever be traced to a cause within human control, then we do not think it would be an exaggeration to say that the solution would annul a larger aggregate of human suffering than that of any other problem which medical science is still puzzling over. If we could prevent dental caries as easily as we can prevent ringworm, every one would feel that the general average of human happiness had been materially increased. That Dentistry, as a separate profession, would therewith cease to exist would be regarded but as a small drawback amidst the general pæan of congratulations. Were the Dentist a mere craftsman, as some of our correspondents frequently remind us, he might well be excused from prosecuting a research, the solution of which must involve his annihilation. If, however, he is, as we maintain, the member of an honorable and learned profession, he will be found upholding the best traditions of that calling of which his own is an offshoot. The great questions now engaging the deepest attention on the part of the medical profession are questions of prophylaxis—antisepticism, the isolation of infectious diseases, &c.—and it would be disappointing if it were found that the Dental profession were less eager in respect to the analogous

problems which lie before it. Such is not the case, however. The papers and discussion on dental caries which engaged the attention of the Odontological Section of the International Medical Congress, and of which we publish a full report in another column, show that the causation of the disease is exercising many minds, and afford the hope that the time may not be far distant when some definite conclusions will receive formulation.

The three chief communications to the Congress, dealing with the etiology of dental caries, provide admirable illustrations of three different methods of scientific research. Mr. Mummery follows the old Baconian method of collecting observations from every quarter, and delaying generalisation until all the necessary facts are known. Dr. Norman Kingsley adheres to a plan which Bacon condemned; he is, to quote Sir Thomas Watson's admirable translation, "speculative, like the spider, who, seeking no materials abroad, spins his web of sophistry from the recesses of his inner being." Messrs. Underwood and Milles, on the other hand, follow the approved methods of modern science; they form a provisional hypothesis, and then proceed to verify it or to disprove it by experiment and observation. This last is the natural mode of inquiry, to which the mind spontaneously flies when there is any general truth to be discovered; and it is the method by which all the most valuable gains of inductive science have been secured, from the theory of gravity to the theory of germs. While, however, expressing our full admiration for the work of Messrs. Underwood and Milles, we do not wish for a moment to lay ourselves open to the charge of underestimating the services of Mr. Mummery, and the series of hints which he has drawn up for future investigators. It must be remembered that Mr. Mummery deals with an entirely different part of the problem from that to which Mr. Underwood has directed his attention. The former takes in hand the *predisposing* causes of caries, the latter has investigated its *exciting* cause. Mr. Underwood's theory may be accepted as absolutely true, and science yet be no whit nearer to the final solution of the great problem. We may settle down into the fixed conviction that bacteria

are the wild beasts that gnaw away our teeth, and yet be no more able to control their ravages than we are to circumscribe the wanderings of one of our own white blood-cells. Bacteria have doubtless been billeted on man ever since his first appearance on the globe, and they will be his guests till he vanishes from it.

With the predisposing causes of caries the case is different. We know that there are certain possible relations between man and his environment when these causes cease to operate, and the great question is what exactly are the essential conditions of that relationship? Mr. Mummery's questions may possibly include those essential conditions; possibly they may not. In any case, however, the facts collected will prove useful, positively in the one event, negatively in the other. But the point to which we wish to draw attention is that the inquiry will prove absolutely barren if it is allowed to end in the simple collection of facts. The main part of the problem will still remain to be worked out. The whole history of scientific discovery teaches us to distrust statistics collected by various observers, and without any definite hypothesis to guide inquiry. The faculty of accurate observation is not a common gift, and the knowledge of this fact is enough to impair the faith of the investigator in any statistics but his own. Thus, the answers to Mr. Mummery's inquiries, let them be as complete and as numerous as he can wish, will at the best only serve as the starting point for fresh statistics gathered with a definite view and to support a definite hypothesis. It is too often forgotten how large a part the imagination plays in scientific inquiry. Bacon ignored it and his method proved as sterile of result as the method which displaced it has proved fruitful.

But if Mr. Mummery's method deals too largely in statistics and too little in definite hypotheses, Dr. Norman Kingsley errs in the opposite direction. The hypotheses are there, largely self-assertive, but where, we ask, with Dr. Magitôt, where are the statistics—"les chiffres?" Dr. Kingsley seems to forget that hypothesis are like banknotes, only worth the paper they are written on, unless they represent an equal sum of sterling gold stored in the bank

cellars. They are sure to be presented for payment some day, and then woe to the credit of the bank which fails to pay in solid coin.

ON Monday next the Dental schools throughout the country open wide their doors to take in a fresh supply of pabulum. Let us hope that it will be such both in quality and quantity as not only to supply the natural waste of the Dental body, but to help it onwards towards new and higher phases of development. Of the Dental profession more than any other may it be said that the young men who join it year by year are its best hope. They are the men on whom Dentistry must rely in the future for its scientific and social repute. Their teachers, doubtless, will do all that lies in their power to give them a thorough scientific culture, and sound practical acquirements, but they will receive an equally important part of their education from their mutual interaction. The quality of a cell depends upon its parent and the nourishment supplied to it; its form is determined by the pressure of its fellows.

THERE is no doubt that much of the want of solidarity which is complained of in the Dental profession is due to the isolation which has until within recent years characterised the education of most Dentists. As time flows on the influence of the Dental schools on professional opinion and practice will be more widely felt, a new *esprit de corps* will gradually grow up, and a network of common memories, common ideals and common thoughts, will knit the now isolated and often warring elements of the Register. Everything that brings the students of the Dental schools into friendly intercourse with each other will doubtless be sedulously cultivated by the authorities, who we know are thoroughly alive to the important bearing which their

present acts and influence will have on the future of Dentistry in England.

WE are tired of writing about the expurgation of the Dental Register, but as the 'British Medical Journal' has thought well to again go out of its way, and give its powerful support to the expurgating crusade, we feel it necessary to state once more plainly and frankly that its views are not those of the majority of respectable Dentists. We are constantly receiving letters, even from members of the British Dental Association, condemning the policy of expurgation, and we have good grounds for believing that it is not accepted with enthusiasm even by some who have allowed their names to appear as subscribers to the guarantee fund. We should like to catechise some of the members of the Representative Board of the British Dental Association, and hear from them a precise statement as to who they hope to oust from the Register, and who they intend to leave on it. Dental politics is not a very inviting subject, but those who guide it ought not to leave it unstudied.

THE delegates who represented the Société Syndicale Odontologique de France at the International Medical Congress have published a short but graceful acknowledgment of their cordial reception by their English colleagues, pending the complete report of their experiences, which will be communicated to the next meeting of their Society. They allude with gratitude to the profuse public and private hospitality with which they met, and with satisfaction to the demonstrations at the Dental Hospital and the meetings of the Dental section. They express an ardent wish that a like occasion may soon enable them to welcome their English *confrères* in Paris with the same generous hospitality, and they conclude with the following expressions of amity:—"The reign of international jealousy is past, and the time is come when the whole profession, throwing aside all

narrowness, is inclined to work together for the public good. Honour be to those who are ready to make a generous sacrifice of their time, their money, and—what in the eyes of some is perhaps still more dear—their projects of reform, in the interest of the majority.” That last *plaisanterie* is delicious—for those whose “withers are unwrung.”

To the same number of the ‘Gazette Odontologique’ in which the above appears, Dr. Mordaunt Stevens contributes an excellent, if somewhat too optimistic, article on the “Modern Dentist.” He draws a distressing picture of the position of our predecessors whose claim to the title of men of science would have been deemed as ridiculous as that of the modern chiropodist. Now, however, our profession has its distinct section at a medical congress, and contributes Fellows to the Royal Society, while the doctors, who still refuse us the right to share their title, might learn much from the daily practice of any Dentist of reputation. But besides being a man of science the Dentist is an artist, rivalling the sculptor in his manipulation of living features, and boasting besides of a useful as well as an æsthetic element in his work. The time will come, Dr. Stevens hopes, when the titles of Dentist, Dental Surgeon, &c., will command just as much respect as that of doctor of medicine. But to attain this end it is not enough to demand protection from the public and the state; each must actively co-operate in every project which is likely to improve our position—

Appius ait, “Fabrum esse suæ quemque fortunæ.”

True, O Appius, but you forgot to caution us against blowing out our neighbour’s fire in our eagerness to kindle our own.

THE following anecdote appears in the ‘Correspondenz Blatt.’ A short time back a buxom maid-servant came to a Dentist in one of the poorer suburbs of Vienna to have an aching tooth out. The Dentist looked at the tooth and was

on the point of applying the forceps when the patient suddenly cried out that she must have gas. She was told that the operation would not last a second, and that a strong girl like her ought to be ashamed of being afraid of such a moment's pain. She insisted on it, however; she must have gas. The bewildered Dentist came to a sudden conclusion; he poured something out of a bottle on to a handkerchief and held it before the maiden's nose. She sank back as though insensible, opened her mouth, and in a second the tooth was out. Patient and Dentist looked at each other and laughed—she because she had so successfully insisted on gas and got rid of her tooth, he because he had kept his patient quiet at the expense of a few drops of eau de Cologne.

THE Schleswig-Holstein Dental Association held its seventh annual congress at Flensburg on 21st and 22nd August. Amongst the subjects discussed were Witzel's antiseptic treatment of the diseased pulp, the distribution of dental caries in Schleswig-Holstein, and the possibility of showing it by means of a statistical chart, the advisability of dispensing with subcutaneous injections in Dental practice, &c. Communications were read by Herrn Herbst, Schmidt, and Kleinmann.

WE are glad to see that the Americans are beginning to realise the necessity of stamping out the shameless traffic in diplomas which has been going on for so long. The diplomas which have recently found the best market have, curiously enough, been of a theological character, but the bartering of medical and Dental doctorates is by no means extinct. Thus, at a recent meeting of the Wisconsin Dental Society a great sensation was created by the President who, like the famous Abner Dean of Angels', though with less melancholy results, "raised a point of order" and stated that, if rightly informed, the faculty of a certain alleged Dental college, located at Delavan, consisting of Professors (?) D. B. Devendorf and George Morrison, were in the room. He felt

justified, under the circumstances, in making the motion to expel them from the meeting. Without much ado the motion was unanimously adopted, the two doctors left the room, "and the subsequent proceedings interested them no more." Circulars have been issued by this faculty and spread broadcast over the country, offering Dental diplomas for twelve dollars, equivalent in the States to the price of a pair of boots. We rejoice to see that the Washington Postmaster General has given directions to the local post office not to pay money orders or deliver registered letters to the President of the alleged Dental college—a very strong order.

A CORRESPONDENT writes with reference to the Dental examination at Glasgow, the pass list and papers of which we published in a recent issue :—"The written papers were decidedly not the hardest part of the trial. The *viva voce* consisted of questions on each subject previously written on, and each candidate was closeted before (with two exceptions) two judges, the one to examine, the other to adjudicate and record. Questions were given somewhat rapidly and an answer expected promptly, and thus in about fifteen minutes or more, but what seemed much longer, a good general idea of the separate capabilities was registered. In such an examination there is a difficulty in accurately determining the percentage of failures on account of some being at the first examination who have been up before, and of the influx at the second part of the examination of those who had passed the first previously ; but it was judged that not more than half the number succeeded in passing the both at the first venture. From hearsay I gathered that one hundred marks constituted the highest register of each of the nine examinations and a falling below fifty at any one is a signal for disqualification. So it may be quite possible for the best man to meet a rebuff by defection or unreadiness in any quarter. The final examination is well calculated to test the practical Dental knowledge of the candidate, a few anomalies being apparently treasured up for inspection, diagnosis, and

treatment. If the slightest discontentment was at all manifested, it was at the short time allowed for refreshments at the journeys to the three different examination places, and at the "too medical" aspect of some few of the questions."

Review.

Manual of Dental Surgery and Pathology. By ALFRED COLEMAN, L.R.C.P., F.R.C.S. Exam., L.D.S., &c. Smith, Elder & Co. 1881.

[SECOND ARTICLE.]

MR. COLEMAN commences his chapter on the "Treatment of Dental Caries" with some remarks on its prophylaxis; he would only allow children to eat bread made of whole meal, and advocates strongly "that during the period of their nurseryhood they should be freely supplied with bones on which to exercise their teeth and gums." Whilst coinciding entirely with our author's views on this latter point, we fear that English mothers will scarcely be persuaded to overcome their prejudices and allow their children to indulge in what they would probably consider, to say the least, a very foreign manner of feeding.

Mr. Coleman gives a very clear account of the materials used for filling teeth, comparing their relative value, and describing the various situations and conditions under which they prove most efficacious. In criticising this part of the volume, however, we cannot refrain from expressing our opinion that the very numerous figures of excavators and pluggers of various shapes give to the book at first sight rather the appearance of a trade catalogue, and might convey to the hasty observer a wrong idea as to its real worth.

The author, when speaking of the absorption of the permanent teeth, suggests a very ingenious explanation of the process; he thinks that absorption on the one hand, and exostosis on the other, are probably due not to the agency of

fresh organs, but rather to the altered condition of the immediate surroundings of the tooth. Thus, if the alveolar portion of the alveolo-dental membrane receive an undue supply of blood, the osteoblasts will receive an impulse resulting in the growth of the alveolus inwards; this may cause pressure upon the cemental portion of the membrane, and in consequence, induce the osteoblasts to take on an absorptive action and become osteoclasts resulting in the loss of the fang of the tooth. On the other hand, if the osteoblasts of the cementum receive an additional supply of blood, the reverse of the above occurs and exostosis results. The extraction of teeth or their divided roots is treated in a very practical manner, and most careful directions are given as to the best way in which their removal may be severally accomplished. The author has given some forty illustrations of forceps, many of which have been devised by himself, and for some of which we personally thank him as we find them almost indispensable; but unfortunately two or three of the woodcuts do not indicate the curves intended very distinctly, as for instance, the "bayonet" forceps figured on p. 224.

The chapter on "Anæsthesia" is opened by a short history of anæsthetics, with special reference to nitrous oxide, from its discovery by Priestley down to the present day. Though nothing certain is known as to the manner in which this gas produces its effects, Mr. Coleman inclines to the theory that its action is probably owing to the absence of oxygen in the blood; from this it might appear that nitrogen would do as well, but this is not the case, for while nitrous oxide is soluble in the blood, nitrogen is not, and therefore cannot replace the oxygen contained in it. The author also details some experiments of his which prove conclusively that though laughing gas is soluble it is not decomposable in the blood. The directions given for its administration and also for operating under it are very full and clear, and we hail them with great satisfaction, as the want of some such account has been very much felt. When treating the subject of dentigerous cysts, Mr. Coleman offers an explanation as to the mode of origin of that class which form in connection with teeth that have suffered impaction, or otherwise delayed

eruption; he says, teeth developed in abnormal positions are carried towards the surface in the process of eruption; on their way, however, they encounter the dense layers of more stationary bone constituting the alveoli of the teeth, and their progress is practically stopped, the bone currents, however, still pursuing their course. In early life the development of bone is sufficiently active to completely surround the tooth, but when the process becomes less rapid there will be a tendency towards the existence of a "hiatus" at that part farthest away from the developing centre, usually the crown of the tooth. The remains of the so-called enamel organ being detached from the crown but attached to the surroundings is carried away, leaving a space formed on one side by the enamel, and on the other by the tooth capsule; "into this space, as a matter of course, serous fluid must under atmospheric pressure be effused," and thus a cyst is commenced. Mr. Coleman has thus added to, rather than modified the previously existing views on the subject, and whilst admiring the extreme ingenuity with which the idea is worked out, we hold that it must be considered very hypothetical, as from the nature of the case it is next to impossible to verify this, or any other explanation which might be put forward as to the exact manner in which the cyst originates.

Before closing these remarks, we must tender our best thanks to Mr. Coleman, and to the publishers, Messrs. Smith, Elder, & Co., for placing before the profession such an excellent treatise on the practice and theory of Dental Surgery; we have already profited, and hope to do so still further, by adopting many of the most useful hints with which the work abounds, and which we rest assured have been thoroughly tried and tested. We have no hesitation in saying that the book will prove of great interest to the whole Dental profession, and that the student especially will find in it a most efficient help towards obtaining that which he is perhaps too apt to regard as the goal of his studies—the licence of the College of Surgeons.

Literary Notices and Selections.

THE TREATMENT OF ODONTALGIA DURING PREGNANCY.

DR. LINDNER strongly recommends the use of croton chloral, where the more rational mode of treatment by filling is impossible. He finds that croton chloral will stop the pain for as long as eight days, while the effect of chloral only lasts for a few hours. A dose of nine grains is to be given in water at bedtime. He relates a case in which he administered this dose to a woman in the fourth month of pregnancy, whose teeth were nearly all carious; a quarter of an hour after taking the drug the patient vomited and then fell asleep. In the morning she woke entirely free from pain and remained so for nearly eight days, during which she was able to attend to her usual household duties. ('Archiv f. Gynækologie'—quoted in 'Vierteljahrsschrift für Zahnheilkunde.')

THE ADMINISTRATION OF NITROUS OXIDE.

FOR the administration of nitrous oxide many forms of inhalers have been devised, of which some are most useful, whilst others are very objectionable. The important points to be observed in their construction are that the valves should be lightly and neatly hinged and the openings large enough to allow a ready entrance, but especially a free exit, for the air. Having obtained a suitable one, the mouth-piece should be placed between the teeth, and the patient informed that, as when half asleep, there may be a tendency to breathe through the nose, you will hold your hand in readiness to gently close his nostrils if necessary. There will be no occasion to place any prop or gag between the teeth as the mouth will be kept sufficiently open by the inhaler, and, if the gas is pure and properly administered, the muscles which close the jaws become quite relaxed and pliable. The patient

should then be directed to take a few deep breaths before the gas is turned on, partly to give confidence, but especially to change the residual air in the air-cells of the lungs. The first few breaths increase the proportion of carbonic acid in the lungs, and consequent uneasiness on the part of the patient may be manifested. If this is the case air should be admitted until all signs of disturbance have passed away, for, although this prolongs the operation and uses more gas, the results are better, the respiration continuing quietly and easily. If the gas is reinhaled, as is a very common practice with many, the face becomes darkened, and spasmodic jerky movements frequently follow; but, by administering in the way above described, such unpleasant symptoms are avoided. If the inhalation is followed by faintness, prostration, or darkening of the face, let the patient inhale ammonia solution in order to neutralise the carbonic acid in the lungs, for which purpose the carbonate will be useless.—*Ohio State Journal of Dental Science.*

THE HEALTH IMPAIRED BY DISEASED TEETH.

THAT the health is seriously impaired by diseased teeth is admitted by both physicians and Dentists, but it is more than doubtful if either profession gives the subject the attention it deserves. Apart from such direct evils as the loss of sleep resulting from toothache, far more serious troubles are likely to arise, frequently without giving indications of their local origin. The following case will illustrate the point:—A gentleman, aged twenty-two, complained of severe neuralgic pains in almost every part of his body; these were followed by more or less rigidity of some of the muscles, and soon general tonic spasms supervened; this lasted for some weeks. No remedy was of avail until attention was called to some very diseased teeth. These were removed, and a rapid and complete recovery ensued. In another instance an unmarried lady, aged forty-one, had suffered for some years from severe neuralgic pains, chiefly

located in the pelvic regions, while the parts supplied by the trigeminus were, for the most part, exempt. Her mouth was found full of badly-decayed teeth; these were extracted, and from that time the trouble vanished, and her health, which had suffered severely, was entirely regained. —*Ohio State Journal of Dental Science.*

PHOSPHORUS NECROSIS IN A LUCIFER MATCH MAKER.

THE following case of necrosis of a great part of the inferior maxilla in a lucifer-match maker, has been recently recorded by Mr. Hector C. Cameron, of Glasgow. The patient, aged twenty-three, was a workman in a well-known lucifer-match manufactory in Glasgow. Seven months before coming under treatment he had suffered from toothache, and had one of his lower molar teeth on the right side extracted. According to his statement, "the hole in the gum did not close, and had kept on discharging ever since." The jaw was found, on examination, to contain a large sequestrum in its right half, firmly imprisoned in a compact shell of new bone. Two sinuses existed just below the body of the bone on that side, and led directly down to the sequestrum. The mass of new bone gave an appearance of very great swelling to the face; the discharge, both by the external openings and into the mouth, was profuse and foetid; the jaws were completely locked, and the teeth in the affected part all very loose. The soft parts of the cheeks were swollen, red, tense, and glazed. Pain was severe and constant. Under chloroform, Mr. Cameron reflected the soft parts from the affected bone by splitting the lip vertically, and carrying a second incision at right angles to this first one, along the inferior border of the bone, from the chin to the angle of the jaw. The openings in the shell of new bone were easily enlarged, and a considerable mass of dead bone removed in two or three fragments. The soft parts were then stitched accurately in position; a drainage tube being

introduced at one angle. The patient made a good recovery. The case is interesting as bearing out one fact noticed in connection with lucifer-match necrosis—viz. the very large amount of bony formation from periostitis which incloses the sequestrum; and in so far corroborating the statement made by some Continental observers, that only those workmen suffer from the disease who have unsound teeth, the phosphorus acting directly through the carious teeth. In the present case, the poison clearly gained admission to the bone through a recently-emptied alveolus. The patient was most emphatic and clear in his statement that all his trouble dated from the extraction of his tooth.—*Glasgow Medical Journal*.

THE DEVELOPMENT OF THE LOWER JAW.

ACCORDING to M. Renard (*Thèse de Paris*) the peculiarities of formation of the lower jaw, which have hitherto been regarded as of such importance in the diagnosis of various races, are simply due either to excessive or defective development. The position of the mental foramina is the only constant point in the inferior maxilla, the distance between them being about the same in all races. By the varying development of the bone in front of it we get all the various forms of prognathism, of alveolar orthognathism, and alveolar opisthognathism. The development of bone behind the foramina is intended to form a basis for the growth of the permanent teeth, which depend for their ease of eruption and degree of development on the roominess of the underlying jaw. Thus, in the negro the last molar has five cusps and five fangs, while in European races it has only two cusps (?), and often only a single fang. In the negro it finds ample room for itself, and is erupted with ease; in the European it appears relatively late, and has comparatively little room for its development. The thesis contains many other interesting details, a notice of which we must defer to another opportunity.

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

Friday, August 5th.

In the afternoon there was a joint sitting of the Section of Diseases of Children and the Section of Diseases of the Teeth, the subject being

EROSION OF THE TEETH.

The discussion was opened by Dr. MAGITÔT, who read a paper entitled "Honeycombed Teeth regarded as an evidence of Infantile Convulsions." The paper which will be published in full in a future issue of this journal was illustrated by diagrams and by numerous models and specimens. The following were the conclusions at which Dr. Magitôt had arrived:—(1.) Infantile convulsions invariably produce disturbance of the intra-follicular nutrition, which results in one of the characteristic appearances of erosion. (2.) These appearances correspond in depth, number, and extent with the date at which the convulsions occur, as well as with their duration and intensity. (3.) The other diseases of infancy, eruptive fevers, catarrhal and intestinal affections &c., are incapable of producing erosion. Certain severe and lasting affections may, indeed, lead to a total disorganisation of the crowns of the teeth, by interfering with their evolution, but not to erosion properly so called. (4.) Hereditary syphilis, though it is impossible to deny its influence on the general constitution of the osseous and dental tissues, does not produce the characteristic appearances of erosion; and every subject of hereditary syphilis who presents erosion will be found to have amongst his antecedents a history also of convulsions. (5.) Erosions of the teeth when found in prehistoric crania are, for reasons adduced by Broca and the author, an evidence of infantile convulsions, the use of the trephine, traces of which were found on these crania, having been invoked for the cure of that malady. (6.) Erosion of the teeth is met with in its most characteristic forms amongst animals which are never subject to syphilis.

Mr. MOON said that it might be taken for granted that all medical men would admit that hereditary syphilis was very apt to produce deformities amongst certain of the permanent teeth, but there were not a few in the ranks of medicine who considered that such malformation might be due to other causes than syphilis. Now this doubt was, he believed, the outcome of a widespread want of a sufficiently distinct idea as to what a typical syphilitic tooth really was. The diagnostic value of a syphilitic tooth depended greatly on this fact, viz., whether such malformation was distinctive and due to syphilis alone, or whether other causes might bring about a like malformation. His own experience—which had been extensive—had led him to the conviction that there was a special kind of malformation which might be depended on as indicative of

hereditary syphilis and nothing else. Mr. Moon then proceeded to describe the differences between normal and syphilitic teeth, and the modes of distinguishing the latter from other malformed teeth. The different kinds of defective enamel formation were then touched on, and the suggestion made that, perhaps, mercurio-syphilitic teeth might be the right term for certain teeth which presented a want of enamel over a semilunar space in the centre of the first formed portion, leading often to the breaking down of the unprotected dentine and the formation of a semilunar notch.

Mr. C. S. TOMES exhibited a model of teeth presenting in a marked degree Dr. Magitôt's erosion, and remarked that the history of the patient was perfectly known to him, and that no attack of convulsions had occurred. The patient had, however, suffered from a severe attack of inflammatory croup at such an age as would exactly correspond with the lesion of the teeth, and had been salivated during the attack.

Mr. COLEMAN said that he had the privilege of being a colleague of Mr. Hutchinson's when that gentleman's attention was first directed to the subject of syphilitic teeth, and he had at first been sceptical on the subject, but as time wore on he could only come to the conclusion that Mr. Hutchinson's views were correct. Since then he had had large opportunities of inspecting the teeth of all classes, and his conviction was only more firm and settled. He would add that the subjects of inherited syphilis might have well-formed and excellent teeth, but in his belief no person could have the type of teeth described by Mr. Hutchinson, who had not inherited syphilis.

Dr. BLACHE was strongly of opinion that erosion was to be met with not only in syphilitic children, but in children who could be declared absolutely free from that disease, and he quoted a case in point.

Mr. J. W. HAYWARD, of Liverpool, related a case in which the primary teeth were black and soft, while of the permanent incisors some were defective in dentine and broader at the neck than at the cutting edges, and others were defective in enamel and presented a honeycombed appearance. In this case there was a clear history of syphilis; the child had never had convulsions, nor had it ever been under mercurial treatment.

Dr. DALLY said that many years ago his attention had been directed by M. Magitôt to the subject of erosion of the teeth, and he had since made extended inquiries into the causation of the phenomenon. He had found that convulsions had seldom been absent in the cases, and there was *always* a suspicion of syphilis. The difficulty was that while patients would plead guilty to convulsions, they invariably attempted to deny syphilis. But convulsions were only a symptom; there was some morbid cause behind them, and might this not be syphilis, a *causa morborum* more active, more profound, and more protean than any other? Erosion of the teeth was the sign of a sudden temporary disturbance of general nutrition in the part, and the discussion seemed to prove that every cause which was able to interfere with the general nutrition—accidental and physiological causes included—might lead to the phenomenon in question.

Mr. JONATHAN HUTCHINSON said that an explanation of the differences of opinion might very easily be given by saying that they were speaking of totally different things, which became apparent on reading two sentences of Dr. Magitôt's paper. In the first place, he

spoke of the honeycombed tooth, and then he stated that he would refute the theory of Hutchinson and Parrot, who attributed it to inherited syphilis. Now he (Mr. Hutchinson) had said repeatedly that honeycombing had nothing to do with hereditary syphilis. Terms should be used which were generally understood. Honeycombed teeth meant teeth which were pitted and deficient in their enamel over a considerable portion of their surface, and those teeth were usually associated with some form of stomatitis occurring in early infancy, caused possibly by the use of mercury. He had distinctly stated that those teeth were not to be mistaken for or confused with the very peculiar typical malformations which he believed were produced by inherited syphilis. His view as to the character of syphilitic teeth had been confirmed by a great many observers in all parts of the world. A central notch and a general dwarfing of the upper permanent incisors were the only features on which he placed any reliance as to the diagnosis of hereditary syphilis. But as it happened that people subject to hereditary syphilis were often subjected to mercurial treatment in their early infancy, it followed from that fact that it would very likely be that the syphilitic patients would display simultaneously with the malformation characteristic of inherited syphilis also malformations characteristic of stomatitis. Hence, it was common to see the honeycombed condition of the tooth coexistent with the central notch and the dwarfing of its upper portion, which he looked upon as the evidences of inherited syphilis. Before proceeding to speak of the honeycombed tooth he would make a few observations with reference to the limitation of the usefulness of the syphilitic tooth in the diagnosis of inherited syphilis. It was not a thing which was constantly present, and he should be prepared to believe that it was only exceptionally present, a circumstance which agreed with what was known of other syphilitic lesions, that they did not occur as matters of course. There were teeth which, from their peculiar form only, he should not in his own mind have the slightest hesitation in declaring to be the teeth of a patient who was syphilitic. But side by side with those there were cases in which the teeth only furnished corroborative evidence—in which they were only slightly malformed. Aided, by the diagnosis of the teeth, already a large number of maladies had been unravelled which had not been previously attributed to their proper cause, and it seemed to him a little late in the day to have to defend the diagnostic value of these teeth, investigated as they had been on all sides. There was very probably much truth in Dr. Magitôt's suggestion that the honeycombed condition of teeth amongst the many modifications of defect in the development of the enamel depended on the influence of the nervous system, and especially as brought to bear through convulsions. Years ago he had had a case in which the dentition was extremely remarkable, and he believed that the defective development of the tooth was due to some derangement of the nervous system, and that that took place in connection with very severe infantile convulsions. The question was whether these honeycombed markings of the teeth—the flutings in the teeth—were directly due to the convulsions themselves, or whether they were due to remedies given for the convulsions which had had the effect of producing stomatitis. He might have been wrong in believing that they were due to the mercury and not to the convulsions. He had produced evidence in favour of the belief that mercury was, and negative evidence that the convulsions could not be, the cause of

the malformation of the teeth. It was very likely that the truth lay midway between his and Dr. Magitôt's opinions, but he thought certainly these points were true, that there were teeth typically malformed by syphilis, that there were teeth defective in the development of the enamel due to stomatitis in infancy, and it was very possible that results very similar to those of stomatitis were due to influences brought to bear through the nervous system, and especially by the agency of convulsions.

Dr. QUINET held that a diathesis which often killed the child in the womb, and left its characteristic traces on the thymus gland, the lungs, and the liver, would hardly pass over the milk teeth.

Professor PARROT wished to make three observations in reply to the arguments of M. Magitôt. First, he would point out that the alteration in the teeth was systematic, certain teeth undergoing alteration, while others invariably escaped. Thus, all the teeth of the first dentition would suffer, and of the second dentition the incisors, canines, and first molars, while the second and third molars were never affected, and he had never yet seen the disease attack the premolars. Why this immunity? Convulsions occurred at every stage of infantile life, and hence we should expect to find no teeth escaping. Secondly, it was very improbable that convulsions occurred during intra-uterine life, and yet it was during this period that the teeth of the first dentition, and many of the second dentition, were developed. Lastly, it was not probable that such grave faults in the dentine and enamel would be produced by convulsive attacks of such relatively short duration.

M. MAGITÔT then briefly replied, and the meeting was adjourned.

Saturday, August 6th.

THE SHARE TAKEN BY SEPTIC AGENCIES IN CAUSING DISEASES OF THE TEETH.

THE discussion on this subject was opened by the reading of a communication by Mr. ARTHUR UNDERWOOD and Mr. W. J. MILLES, entitled "An Investigation into the Effects of Organisms upon the Teeth and Alveolar Portion of the Jaw." The paper commenced by describing the varieties of organisms most frequent in the mouth; the conditions favorable to their existence and proliferation; their chemical products; and the conditions which rendered their life impossible. The author then passed on to consider (1) the effects of organisms upon enamel; and (2) the effects of organisms upon dentine. Their presence in respect to dentine was demonstrated by microscopical sections, in which the germs were stained with methyl violet, and their effects were shown by contrasting the destruction of tissue—(a) in teeth subjected to the action of acids under aseptic conditions; (b) in teeth subjected to the action of germs under excessively septic conditions. Previous experiments upon the causation of caries were then investigated, with the object of showing that wherever experimenters had succeeded in producing caries artificially they had subjected the teeth to septic conditions, and where they had employed antiseptic agents (carbolic acid and creasote) they had not succeeded in producing caries. Thirdly, the author considered the effects of organisms upon the surrounding

tissues, showing their relations to alveolar abscess, pointing out the difficulty of maintaining a septic condition in the mouth. The authors' use of eucalyptus oil and iodoform was described, and the results of their use given—(a) in alveolar abscess; (b) in dead roots; (c) in roots partially dead. The paper concluded with a brief *résumé* of typical cases illustrating the writer's views.

The CHAIRMAN expressed the thanks of the Section to the authors for their very elaborate and scientific series of experiments.

Dr. TAFT said that no doubt the experiments which had been made were interesting and well conducted, but Dentists ought to be careful in regarding them as containing a sufficient explanation of decay as it occurred in the mouth. The experiments looked in only one direction. Some were performed under a uniform temperature, and were carried out in the same fluid for a considerable length of time. What were the facts in reference to decay as it occurred in the mouth? There was, in the first place, a living tooth to be operated upon, and, in the next place, a variety of decomposing agents undergoing constant vicissitudes. Now one acid was developed, now another, now two or more simultaneously. The temperature of the mouth was perhaps nearly that of blood heat for a part of the day, but it was from time to time very much modified, and this constant variation of temperature would have a bearing upon the teeth that were undergoing decay. The manner of the patient was one of the causes modifying temperature. Some people went about with the mouth more or less open, others always had it closed unless it was being used in speech or feeding. Some persons inhaled through the mouth, others inhaled wholly through the nostrils. From these causes there was a constant variation in the temperature of the mouth, and yet the variation did not cover a large range. Such modifying circumstances necessarily modified the production of decay, and they should be taken into account. So far as his observations went, there was no such thing as simulating or exactly producing out of the mouth the same kind of decay that was found in the mouth. If the latter was produced in the manner which had been suggested by the authors, we should probably find a nearly uniform result; but the fact was that we found variety—some decay of one form and some of another. When the organic material remained as distinguished from the inorganic lime salts, it presented under the microscope a variety of phases. Sometimes its structural character remained to a very remarkably perfect degree; in other instances the structural character was totally broken up. Sometimes the organic material remained so that the tracks of the tubuli were perfectly perceptible under the microscope, and in other cases these were totally obliterated.

Dr. DENTZ said that they were greatly indebted to the experiments of Mr. Underwood and Mr. Milles, but their work nevertheless had a great resemblance to the work which had been published by Leber and Rottenstein some years ago. The difference was that the present authors had more amply and profoundly investigated the subject. As to the conclusion, it was exactly the same. No doubt if Prof. Wedl were present, he would make the same remarks on the present work as he had done on the work of Leber and Rottenstein. Mr. C. S. Tomes had lately, in his work on 'Dental Surgery,' expressed the same view. He (Dr. Dentz) was strongly of opinion that the theory which had been put forward by Messrs. Underwood and Milles, would not long remain of any great value. Nevertheless, he had the highest respect for their work, and he

must acknowledge that he should have liked to be able to perform it himself.

Dr. ATKINSON (of New York) thought they had no right to assume that bacteria and micrococci were the immediate agents in the generation of what were termed acids, and that they had the power of undoing the combination of the elements constituting the tooth tissue by engaging the latent or sleeping energy in the already formed structure to a greater degree than that already in the bond subsisting between the elements of the molecules in tissue which was supposed to be healthy or at rest. Then, what had we? Simply a chemical question in that aspect, and he gathered this from the remarks of Professor Taft, in which he spoke of organic and inorganic. Should he (Dr. Atkinson) be considered out of place if he invited attention to the inefficiency of past nominations to lead their minds to an understanding of the processes of the building up and the breaking down of teeth? The difference between organic and inorganic was simply one of degree as far as he had been able to investigate any change, and he thought that he was strictly within the explanation of the specimens which had been presented for the purpose of proving that acid was necessary to the breaking up of tooth substance; in other words, to dissolve it and produce an unhealthy condition. He had perceived that there was an intolerance of originality of thought and profundity of research in this body. He had been pained with it, and he hoped that what he said might enable young men to avoid the rock on which he had spent so much of his own life uselessly. That rock was the acceptance of what was seen by others as real authority without investigating the specimens for oneself and receiving the illumination that came from a negative or inquiring state of the mind.

Mr. S. J. HUTCHINSON thanked Mr. Underwood and Mr. Milles for their three years of hard work, but he would ask them not too hastily to abandon the theory of the presence of tubes in dentine. They admitted that there were fibrils, and those fibrils ran in calcified structure. It was a little early in the day to say that a channel in which fibril ran was not a tube, and he would fight to the end before he would willingly sacrifice the term dentinal tubules. Mr. Hutchinson concluded by reading a quotation from a paper which had been read by Dr. Harley in the Pathological Section, and which, he thought the members would agree, gave most conclusive evidence of the satisfactory character of the results which had been obtained by Messrs. Underwood and Milles.

Mr. TOMES said that he was not at all prepared to go into a criticism of the researches of the two authors, but he must say that the difficulties which had been raised were not to his mind valid. Dr. Taft had told them of the varying temperature of the mouth, but he had not told them that those temperatures varied in a sufficient degree to destroy or to seriously interfere with the development of low forms of organic life. He thought that until they had some better explanation of caries than had been brought forward, the theory now put forward might be accepted provisionally. At all events, there had not been sufficient reason shown why it should not be accepted.

Mr. C. S. TOMES said that Dr. Dentz had called attention to the researches of Leber and Rottenstein as tending in the same direction as those of Messrs. Underwood and Milles. What Dr. Dentz had said would leave on the mind of the meeting that the researches now submitted did not take any great step beyond those of Leber and

Rottenstein. On that point he (Mr. Tomes) must differ emphatically. The point of importance in the experiments now submitted was that when the germs were excluded they failed to obtain those results in the production of artificial caries which the older experimenters produced. Let the germs be admitted, and the artificial production of caries at once ensued. He submitted that this was an immense difference, and it was a practical difference which bore on the treatment of dental caries and on the treatment of alveolar abscess, and in fact, on everything which Dentists were doing in their daily work. The point he had dwelt on was new, and it was submitted now absolutely for the first time. In reference to what Dr. Taft had said, he thought that the arguments which he had adduced against the experiments might be used in a precisely contrary direction. Dr. Taft had pointed out that in the mouth there was a series of varying conditions. He had also pointed out that there were varieties in caries and in the phenomena observed. That was exactly what was wanted. When the experiments were performed at a uniform temperature under uniform conditions, they obtained a uniformity in the artificial caries such as was not present in natural caries in the mouth. They therefore wanted something to help them to explain how it was that the experiments did not exactly tally with what was found in the mouth, and Dr. Taft had furnished them with a reason for the difference.

Dr. TAFT explained that he had not meant to oppose the conclusions which were properly deducible from the experiments. He simply stated his opinion that on account of the reasons which he had given, the experiments could not provide a complete explanation of the process of decay. He did not deny the presence of the parasites, for they were apparent to all close observers. He was not, however, satisfied, from anything which he had anywhere seen, that the parasites were the primary agents in the process of decay. He believed that they were secondary and that decay in its incipency took place before the existence of parasites at all.

Mr. COLEMAN said that he believed that the paper, whatever view they might take with regard to it, was a step in advance in their knowledge of the disease termed dental caries. He had understood Mr. C. S. Tomes to say that some condition was wanted in order to explain the difference between the artificial caries produced in the experiments and the disease which occurred within the mouth. He thought that such a condition was readily furnished by the fact that in the mouth the tooth was a part of and attached to the surrounding living structures, while out of the mouth the tooth was devoid of such a connection.

Mr. SPENCE BATE said that whatever notions they might entertain he did not think that it was possible to give too high praise to Mr. Underwood and Mr. Milles. Dentists could not pay them a higher compliment than by sifting their experiments and their theory to the utmost. He thought that Mr. Tomes was a little too quick in accepting the theory as provisionally true. There were several points which seemed to him to show weakness in the investigation. He should like to see more experiments on teeth taken from the mouth. Not very long ago pathologists taught what was commonly called the cell theory. That theory was once regarded to be the acme of all research in that direction. It had, however, passed away, and it now seemed to him that they had come rather to the bacterian theory, and every kind of disease under every circumstance was thought now to arise from bacteria. He did not say that the theory

was wrong. He only said that they were running too rapidly into a fashion, and taking for granted that which, as scientific men, they ought first to prove. If they were to extract a decaying tooth from a mouth and hermetically seal it in one of their flasks and keep it at the same temperature, the bacteria would still live, and decay ought consequently to go on. He could, however, show decayed teeth two thousand years old, which ought to have been destroyed altogether by the present time, whereas they seemed to be in the same condition as when they were in the mouth of the individual. He did not see that it had been yet shown or proved that bacteria were the ultimate or primary cause of the decay of teeth. Mr. Charles Tomes had made a remark which at first sight seemed to be very strong. It was that if germs were admitted, decay would take place, whilst if germs were excluded there was no decay. It seemed to him (Mr. Spence Bate) that whenever the authors performed an experiment so that they admitted germs, they also admitted other conditions as well, and consequently they could not claim that the experiment was perfectly clear and distinct. A very good case had been made out by the authors, but it was one in which it was highly desirable that research should go farther before the experiments were accepted as conclusive. However he thought that the whole section would give the highest praise and credit to Mr. Underwood and Mr. Milles for bringing forth so elaborate and excellent a paper.

The PRESIDENT thought there was great force in Dr. Taft's remark that there was a vitality in the mouth which might cause the results to differ from those obtained in experiments upon dead and separated teeth. It appeared to him, however, that the statement of Mr. Spence Bate about the teeth which were two thousand years old, afforded the strongest evidence of the soundness of the theory propounded by Mr. Underwood and Mr. Milles. If Mr. Spence Bate would take those teeth and set them in an artificial ivory denture and reintroduce them into the mouth, the process of decay which had been suspended for two thousand years would immediately recommence.

Mr. UNDERWOOD, in reply, said that he must recall the minds of some gentlemen to the fact that the time for the reading of the paper had to be limited to twenty minutes. He could not be expected to explain everything thoroughly and completely in that time. He had simply wished to show what difference there was between a tooth to which germs had access and a tooth to which they had not access. He did not for one moment mean to say that bacteria could destroy any tooth, be its nature what it might. The tooth must be weak in order to be attacked. With regard to the observation of Dr. Taft that bacteria were not primary but secondary, he could only meet it with an observation which he thought was as weighty, namely, that they were not secondary but primary. (Laughter). There was as much or more reason for saying that they were primary as for saying that they were secondary. With regard to there being no such thing as producing decay out of the mouth, all that they proposed was to produce it as nearly as possible, but the question whether the decay took place in the mouth or out of it, was not a fundamental point. With regard to the uniformity of the result, the results were no more uniform than the bacteria. If bacteria were all alike, they would no doubt all produce the same mischief. He believed that there were at present a hundred named varieties which were perfectly distinct. Mr. Atkinson had asked what septicism was. It was the presence of organisms. Writers

were obliged to use words in their general acceptance, and that word was applied in England now to the presence of germs. With regard to Mr. Hutchinson's remarks, he (Mr. Underwood) and Mr. Milles had certainly not abandoned the word "tubes." He only wished to say that a doubt had been thrown upon the word, and therefore he avoided using it, lest it might cause a little trouble. Mr. Spence Bate had said that the greatest compliment which could be paid to him (Mr. Underwood) and Mr. Milles was that their theory should be investigated. He only wished that they would investigate it. He and Mr. Milles did not accept it any more than the meeting did. It had suggested itself as possible, and they had looked to see whether it was probable. Having examined sections, they thought that it was probable. Then they prepared some flasks, the results of which had led them to think that it was still more probable. Then as the Congress was about to be held they had decided to put the subject before it, even in its very immature form. One very great compliment had been paid to them already, and that was that there had been a very good discussion.

It was announced that Mr. Underwood had promised to give a paper containing full details of the subject at the meeting of the Odontological Society next December.

ALVEOLAR ABSCESS.

Dr. DEAN, of Chicago, then read a paper on alveolar abscess, an abstract of which appeared in our issue of September 1st.

ON CIVILISATION IN ITS RELATION TO THE INCREASING DEGENERACY OF HUMAN TEETH.

A paper on this subject was read by Dr. NORMAN KINGSLEY, of New York. "The most important undetermined problem," said the writer, "now confronting the Dental profession, is embodied in the inquiry made daily by anxious parents in substantially the following form:—'Why do my teeth decay more rapidly than my father's or mother's did, and why are my children's teeth decaying at an earlier age than mine?' This inquiry does not come from those who neglect their teeth or from the lower classes of society, the ignorant, or the depraved. It is confined to no race or nationality, but it comes from a class which is the most intelligent, cultured, and finely organised in any community respectively of race, locality, or climate. It is useless to treat the inquiry lightly or admit a denial of the premises. The cases are exceedingly rare if they exist at all where the teeth of the children are sounder than those of the parent, and we must admit the conclusion that with each succeeding generation the dental organs are becoming more and more degenerate. What response has the practitioner to this inquiry? It is not difficult to formulate an answer which will satisfy many, even those who are well versed in other branches of science are often satisfied with an answer that will not bear investigation, and may be even absurd. In this way we have daily a repetition of theories and speculations which have just enough foundation of truth, and just enough plausibility to escape being challenged. Probably the most universal idea among cultivated unprofessional people of the cause of decay is candy. There is probably no more fallacious idea so generally believed. But pure

candy in moderate quantity never harmed any healthy child or adult. Another speculation which has gained some credence is contained in the discovery that iced water, hot drinks, or hot cakes are the cause of all the mischief. It is very doubtful if a cavity of decay ever originated from sudden changes of temperature. Another favoured theory is that the decay is caused by living upon soft food instead of upon food that requires mastication. Food has, unquestionably, a most important influence upon the dental organs but no benefit arises from the rejection of soft food and the substitution of hard. The food theories may be among the secondary causes of decay, but they are not the primary cause of the present increasing degeneration of the tooth structure. Still another theory is embodied in the statement that contact always produces decay. That contact is anything but an incident to the real cause cannot be shown. An examination of the most solid dental structures ever presented for professional inspection shows all the teeth in absolute contact with no traces of decay. The contact theory must be relegated to its proper place among secondary causes simply as a coincident factor in the great problem. Another theory is the want of cleanliness. This also is only a factor which must be associated with many others to give it any potency. We frequently see perfect dental structures which have never known cleanliness as at present understood. Cleanliness is more immediate in its remedial character than as an explanation of the primary cause. 'Climatic influences are the cause' says another, and still another maintains that the cause is intermarriage or the mixing of types. Certain districts may be malarious to the unacclimated, and the whole system may be poisoned, but tooth structure suffers, if at all, only as a secondary result. Interbreeding and crossing types of the human race ought not to result in defective tooth structures. Reasoning from analogy with regard to what takes place in the case of animals, improvement should be looked for, but interbreeding in its highest application and essence involves that only sound and healthy subjects should be concerned. The mixing of inharmonious types may result in deformity, but not in deterioration of structure. Other vague theories used often without much understanding are formulated, but the most comprehensive and the most tangible of all which has been made sponsor of dental caries is, civilisation. What is civilisation? What has civilisation to do with decaying teeth? It means out of barbarism into refinement, out of ignorance into knowledge, out of bondage into liberty, out of privation into comfort. Civilisation expands the intellect, represses vice and savage instincts, cultivates virtue and noble aspirations, encourages the growth of emotional nature, and enlarged the domain of human sympathy. Civilisation defies and controls the elements, organises commerce, builds cities, railways, telegraphs, and factories. Civilisation is the divinely appointed method through which mankind derive their greatest blessings, and by which they reach their highest possible state of intellectual, moral and social development. Only through civilisation will the millennial or ideal existence of the human race ever be attained. Civilisation, therefore, is a normal condition of mankind. In the more refined and luxuriant conditions of life, we find physical labour exchanged for mental, and strain of mind takes the place of strain of body. Muscular tension ceases and nervous tension takes its place. The mind is constantly on the alert, and the brain has no rest. The nutrition of muscles and bones is directed to repair the undue waste of nervous tissue, and, sooner or later, comes inevitably the long list

of nervous diseases which now so threateningly confront us. The causes which tend to produce such results were more active and more potent in the Northern United States than in any locality in the globe. The reason for this has its foundation primarily in the institutions of the country, and the stimulus which the country affords for the intensest mental activity. But testimony is not wanting that the same thing in kind is now going on in Great Britain; and even heretofore stolid Germany is developing a like transition. Nervous diseases and decay of teeth are correlated, both being symptoms of a common cause. The teeth require constant nutrition as do the muscles, the bones, or any other organs or tissues of the system. Teeth decay primarily because the nutrition of their organic structures is withdrawn. Retrograde metamorphosis ensues. Caries is simply solution or disorganisation of tooth constituents by agents which are always external, but which would be quite inert under other constitutional conditions. When nutrition is insufficient or diverted, the resisting power of the vitality inadequate, and destructive agents present, the teeth will yield at their weakest point, and caries is the result. The ordinary remedy of these evils, and the salvation of the race from degeneracy and destruction would seem to involve a return to a condition of life more consistent with hygienic laws. The pessimistic view of the future is without reason, for while degeneracy of the teeth is certainly on the increase in certain families and classes, there are equally certain signs of its abatement. With increasing wealth, families have less care, less anxiety, less nervous strain, more ease, more attention to hygiene, and better habits of life. The intellectual activity of to-day, and the energy and intensity of modern thought, are not inconsistent with a sound constitution, with perfect health all in the tissues, and with long life. It is worry which wears out the nervous system, and not work. Civilisation, the glory of mankind in their maturity, is nevertheless in no wise responsible for the accidental effects which have resulted from a revolution of her true principles; for out of civilisation ought to, and must, come the grandest examples of physical beauty the world has yet seen, without spot or blemish or taint of disease."

Dr. BEARD (New York), said that he was not a Dentist, but he had a special and peculiar interest in the subject of the paper, for he had given his life to the study of the nervous system, and the teeth were so connected with the nervous system that they could not be studied apart from it. In the study of medicine, physicians had passed through the same stage which Dentists were now passing through. In the case of dyspepsia, for instance, although there had, no doubt, been cases of that disorder for thousands of years, it was only during comparatively recent years that it had become a general disease in the United States. The same thing held good with regard to caries. The wave of nervousness was now sweeping across the Atlantic, and there had not been a week during the past year in which he had not received from scientific men in Germany communications with regard to the subject, stating that they had all the nervous disorders which prevailed in the United States. He had no doubt that they also had dental caries increasing in frequency. A few years ago dyspepsia was called in Germany the American disease. Dyspepsia was now the disease of civilisation. The progress of hay fever offered another excellent analogy. It had passed through just the same stage. Helmholtz made some microscopic observations on hay fever, and concluded that it was caused by infusoria; but hay

fever was no more an infusorial disease than was insanity. Among North American Indians, decayed teeth were comparatively rare. It was equally certain that they were rare among the negroes in North America and the lower orders of society. But among the latter classes decay of the teeth was increasing as was also hay fever, nervous dyspepsia, and sexual exhaustion. In China and Japan, the natives could breathe bad air all their lives and eat the worst of food, and not have any of the diseases which would occur in the United States or in civilised Europe. A similar state of things held good with regard to alcohol. A savage could take all the alcohol he wanted, and it did not hurt him. He never became nervous or what was called an inebriate. In New York, the inhabitants could not stand alcohol. In Baltimore and Chicago there was very little of that substance used. The reason was not because there was more morality than elsewhere, but because there was more nervousness. All through England and even in Germany there was an increasing sensitiveness to alcohol. There was an analogy between these changes and the change which had taken place with respect to the soundness of the teeth, the same law presiding over all.

Dr. MAGITÔT, speaking in French, said that according to Dr. Kingsley's views, caries was constantly progressive in frequency; but he (Dr. Magitôt) was far from sharing that opinion, and to prove this progressiveness to his satisfaction, it would be necessary to bring forward statistics showing that the proportion of carious teeth was greater now in the same number of individuals than it had been in the past. So far from this being the case, in looking back at the history of caries one found it was equally frequent during the older civilisations—that of Ancient Egypt, for instance. In prehistoric times, too, the proportion of carious teeth was very great. To explain the greater frequency of caries in different portions of the globe, it was necessary to bear in mind the influence of race. It was undoubted that certain maladies had a greater affinity for certain races; caries was in this category, and he (Dr. Magitôt) had shown in a map of France which he had prepared for the purpose that the frequency with which it occurred varied in different parts of the country according to the racial origin of the inhabitants.

GENERAL ENQUIRY INTO THE PREDISPOSING CAUSES OF DENTAL CARIES.

Mr. J. R. MUMMERY propounded a series of questions "as to the predisposing causes of caries."

Before reading the questions, which had been drawn up by him at the request of the Council, Mr. Mummery referred briefly to a paper which he read before the Odontological Society of Great Britain, in 1869. He had examined in the course of nine years every available collection of skulls in England, in order to obtain reliable data respecting the Dental condition of the races who had successively inhabited this country, more than 3000 skulls having come under his notice. About 2000 of these had been selected of which the identity could be ascertained, and he had found among the earliest races, whether palæolithic or neolithic, a striking infrequency of caries. The Celtic race which succeeded them were proved by their implements and other remains to have attained a considerable advance in civilization, and among these people the increase of Dental disease was very apparent. After the Roman conquest, the introduction of

artificial habits led to still greater degeneration of the state of the teeth, and some examples were found fully as serious as any of the present day. The influx of the mighty hordes of the Teutonic race, a people of simple habits of life, was followed by a remarkable diminution of Dental disease. His (Mr. Mummery's) deductions had been corroborated by military surgeons and others, who had had abundant opportunities of observing the teeth of various uncivilized races, but he thought that still wider observation was desirable. It appeared to him that a gathering of such an unprecedented number of scientific men afforded an opportunity which should not be lost, and he proposed the following list of questions for general distribution by authority of the Congress, with the hope that members of the profession would be induced to pursue the subject further, and to report, at a future Congress, the result of their investigations.

1. Have you any opportunity of comparing the teeth of mountain dwellers with those of a kindred race of people who inhabit marshy plains or insalubrious valleys?

2. Have you observed any injurious effects upon the teeth, attributable to the impregnation of drinking-water with sulphurous acid gas, in volcanic or in coal mining districts?

3. Have you facilities for comparing the condition of the teeth of factory operatives with those of an agricultural population in a neighbouring district?

4. Have you noticed an especially healthy state of the teeth and fuller development of the maxillæ among sailors, whose diet of hard biscuit and tough meat requires efficient mastication, thus approaching the necessary habits of uncivilised races?

5. Have you observed, among communities in a similar rank of life, who subsist on a mixed and often unwholesome diet—requiring but little mastication—a less favorable condition of the jaw-bones and teeth?

6. Have you noticed any remarkably healthy state of the dental organs among people who subsist upon oatmeal, pure wheatmeal, maize, or leguminous food, as compared with those living upon potatoes or other food deficient in albuminoid elements?

7. Are you of opinion that the frequent sucking of sweetmeats, especially when combined with citric or other acids, may be regarded as one cause of the increasing prevalence of dental caries?

8. Have you observed any instances of the alleged injurious effects of camphor as an ingredient in tooth powder?

9. In instances of the immigration of families who have quitted a highly artificial state of life and have settled in a healthy district or country—adopting similar and healthier habits—have you had the opportunity of comparing the diseased state of the teeth in the elder children with those of the children born under the later and more salubrious conditions?

10. Have you observed in certain families who have been for a long series of years under your professional care a progressive deterioration of the teeth in each succeeding generation?

11. Have you known instances in which the cumulative influence of hereditary disease, consequent upon repeated intermarriages, has manifested itself in contracted maxillary arch and extensive dental caries?

12. Have any cases come under your notice which lead you to conclude that injury to the teeth may sometimes be traceable to overtaking the intellect of young children, seeing that the brain is undergoing its most rapid growth at the time of life when the whole

of the permanent teeth, with the exception of the third molars, are in process of development?

THE RAPID EVACUATION OF ALVEOLAR ABSCESS BY A NEW METHOD.

Mr. WALTER COFFIN described what he held to be a rather remarkable operation for the complete and rapid evacuation of an extensive abscess, and which he had not known to be previously published. He said that the complete application of any medicament to a large and inaccessible abscess always presented mechanical difficulties. It had occurred to him that for the ordinary hydraulic or pneumatic pressures which were applied there might be substituted some rapid chemical evolution within the cavity. He had carried out the idea by injecting into a large opening a solution, as strong as he could obtain it, of peroxide of hydrogen. This substance, if cold and rapidly injected, almost immediately afforded a rapid evolution of oxygen upon the whole surface of the abscess. He could conceive of nothing more satisfactory under the circumstances than such an antiseptic as nascent oxygen. The liquid when injected was perfectly clear. Immediately the operation was performed it was followed by an enlargement of the cavity, and the rapid exudation of a white milky froth. There was no albuminous evacuation, and the result was extremely satisfactory. He had in his own mouth a very extensive alveolar abscess, and this he kept for the purpose of experiment. It entirely resisted all the ordinary applications of carbolic acid, creasote, and every other known remedy. A single injection of peroxide of hydrogen, to his complete astonishment, completely subdued the mischief.

Mr. COLEMAN said that with regard to the interesting cases of alveolar abscess in which an aseptic condition had been produced where there had formerly been a septic condition, it would be extremely interesting to be able to ascertain what finally occurred in the process of cure. Their attempts to cure would then be more rational and less empirical than they were at present. It occurred to him that the tissues were brought into a condition comparable with that of the catgut ligature first employed by Professor Lister which gradually became absorbed, particles of living matter making their way between its meshes. It might happen that the action of antiseptics brought the imperfect degenerate tissues into a condition in which they were absorbed, their place being supplied by fresh living tissue.

The section then rose for the day.

VACANCIES.

DENTAL HOSPITAL OF LONDON.—Dental Surgeon. Candidates must be Licentiates in Dental Surgery of a recognised licensing body. Applications on or before the 10th inst.

NATIONAL DENTAL HOSPITAL.—Dental Surgeon and Lecturer on Dental Surgery and Pathology. Candidates must possess the L.D.S. Eng. Applications with testimonials on or before 15th October to Arthur G. Klugh, Secretary.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our
Correspondents.]

ADVERTISERS AND ADVERTISING.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Many of the Dental profession will hail with satisfaction the well-timed leader on "Advertisers and Advertising" in your journal for the 1st September. Advertisers and advertising could not, I presume, be entirely absent at the recent Medical Congress, but that the journal of an association formed to elevate the status of the profession and the standing of its members should encourage these things, is a matter of great surprise. But that it does so must, I think, be concluded on looking over the most recently issued number.

In a letter signed by a "London Practitioner" we are told how he attended certain "very instructive clinics;" I presume, under conditions which were well known to every Dentist attending Section XII of the Congress. He describes the application of the demonstrator's "very convenient special screw clamp," how the electric mallet was used, and lastly, how the whole thing was "fully appreciated" by about twenty-five practitioners. Finally, he states the opinion "that these demonstrations cannot fail to produce good effects."

Now, sir, it cannot for a moment be doubted that this letter was written in perfect good faith; but knowing, as all the Dental members of the Congress knew, how these special clinics, under special conditions at a special place, were originated, would it not have been wiser for a "London Practitioner" to have kept his experience to himself, or for the editors of the British Dental Association Journal to have omitted printing a letter which could not be but an encouragement to a form of advertising, which you so strongly and justly condemned in the article referred to above.

And a "London Practitioner" condemns himself in the same letter. For he admits, what every one knows, that demonstrations, under no special conditions, but free to all members of Congress, were given almost daily at the Dental Hospital by men of all schools of work, and not only so, but demonstrations of equal, if not more importance, are given very frequently in precisely similar work with similar appliances, by the senior demonstrator in gold filling at the

Dental Hospital, Leicester Square, and I have no doubt also at the National Dental Hospital. And if there is a general desire on the part of Dental practitioners to see how the students are being educated in the so-called "American" work, or even to learn—if this were possible by a *few* demonstrations, which I believe it is not—the Committees of the London Hospitals would give every facility.

But again, on page 509 of the same number, we are informed *in an article* how, during the coming winter, a certain New York gentleman will give a series of clinical lectures on his *special* method of celluloid working at 27, Broad Street—I presume under similar conditions and, I believe, in the same house as the late "stopping" clinics. British Dentists are always ready carefully to examine any new methods of Dental procedure from whatever source. It is, perhaps, too much to expect any man to give his time and money in affording explanations and showing operations. But do let us have such advertisements in the advertising columns of the journals under advertising conditions.

The British Dental Association is desirous of "cleansing" the Dental Register. By all means. But "first cast out the beam out of thine own eye," &c.

I am, &c.,

L.D.S. Eng.

September 19th, 1881.

To the Editor of the 'British Journal of Dental Science.'

SIR,—I enclose a sample of the advertising which assails us in this town and county. You will see that the advertiser classes himself with the respectable portion of the profession, and a great number of the community will probably accept the statement without reserve. You say "the day will come when the Dentist of every grade will shrink from doing that which is now done by those high in the profession." True; but shall we get free from trade tricks whilst the people look for them, for whatever may be the case in London and among the higher classes in the commercial towns, where trade is the origin and sustainer of the mass of our patients, the Dentist who does not advertise, put up a show-case, or have an immense door-plate, is looked upon as lacking spirit and devoid of business capacity. So much for the advertiser to the public, we must strive to live him down; but what about the notice circulated amongst us since the Congress? Firstly, I believe we ought to separate the operative from the mechanical exhibitor before condemning wholesale. If it be true that the latter has given for some time his whole attention to mechanical inventions and experiments, he is but following the ways of trade to obtain all he can from his inventions;

his conduct does not cast any slur upon the profession, for he is not exhibiting as a professional man.

Can we say anything in defence of the operative part of the performance, and need we say anything in condemnation other than that it was utterly unprofessional, and that perhaps the terms in which the announcement was made formed the worst feature of it. I do not know what success may have attended these demonstrations, but I believe a D.D.S., resident in London, expressed the feeling of most Americans, when he said that no respectable Dentist would be seen at them. That has to be proved; but I cannot class this demonstration of the use of certain goods which a Dentist has invented, and which he desires to sell, with the ordinary clinic. When you decry clinics except they be given at a recognised institution, and when "Phosphor" inveighs against public clinics at private houses (public, I presume, to any Dentist), I cannot follow you. And why not? Because having experienced benefits from attendance on clinics in the States I know they are of use, and had hoped for a better appreciation of those held during the Congress. Without doubt it is true "we have well-developed institutions; we have a scientific society which holds its head proudly, we have practitioners amongst us who, from the scientific standpoint, are pre-eminent;" and our average skill may be no less reliable than that of other nations. But do the well-developed institutions teach everything? and if they do, is not that teaching for the student? Cannot the practitioner learn something from seeing, that he is to be satisfied with the "scientific society" and the periodicals? If the average skill be as high as that of other nations, shall there be no attempt to raise it? When we see the horrible state of mouths as left by the average Dentist, there is reason to wish some practical education somewhere; cavities ill shaped, pulps destroyed with no attempt at salvation, root canals uncleansed, amalgam jammed in anyhow, and fistula brought about. And by whom? The average Dentist, the L.D.S., and not the L.D.S. of yesterday, as some of us are, but the respectable L.D.S. of a dozen years' standing. For a conscientious man to see such work coming from other Dentists, but never, or seldom, to see better work than his own, whatever that may be, is depressing if he has the welfare of the profession at heart, and is not likely to elevate the standard of his own work. However desirous of doing well and improving, one is spurred onward by competition with others. I believe a great many have no idea of the perfection with which an amalgam filling may be finished though they may have put in amalgam all their Dental career. Then, what shall their

idea of gold be? I have seen one of our Dentists look in astonishment at gold fillings inserted in America five or six years before, and exclaim that he had never seen anything like it in his life. Let us hope it was a revelation to him; most of us need such in various matters.

I am, &c., W. X.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

- "J. S."—Your communication is not suitable for our pages.
 "STUDENT."—All the information you require is contained in the Students' Supplement, published in our last issue.
 "RATCATCHER."—You will be expurgated with the rest.

Communications have been received from Messrs. John A. Fothergill (Darlington), "L.D.S. Eng.," Burroughs, Wellcome & Co. (London), A. J. Prager (London), W. Hodgskin Hope (Wellingborough), Claudius Ash & Sons (London), "H. A.," John Jamieson, jun. (Glasgow), "L.D.S.," "Dentist."

BOOKS AND PAPERS RECEIVED.

'Lancet.' 'British Medical Journal.' 'Medical Times and Gazette.' 'Pharmaceutical Journal.' 'Chemist and Druggist.' 'Journal of British Dental Association.' 'Dental Record.' 'El Progreso Dental de la Habana.' 'Dental Cosmos.' 'L'Odontologie.' 'Missouri Dental Journal.' 'Le Progrès Dentaire.' 'Gazette Odontologique.' 'L'Odontologia.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

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ON EROSION OF THE TEETH REGARDED AS AN EVIDENCE OF INFANTILE CONVULSIONS.*

By Dr. MAGITÔT, Paris.

WE frequently observe on the surface of the crowns of the permanent teeth, and more rarely on those of the temporary teeth, a certain congenital tissue change, consisting either in an excavation of their free edges, or in circular furrows of variable depth and number. These changes affect symmetrically the homologous teeth of the same jaw, and it has been agreed to class them under the common name of *erosion*. Their consideration falls under the domain of general semeiology, for it is the unanimous opinion that they form a permanent and indelible sign of a disturbance in the formation of the dental crowns, occurring during the intra-follicular period of development, and due to a pathological cause which was necessarily in action at the time when the part of the tooth affected was being formed. Attempts have been made, and not without just grounds, to compare erosion of the teeth with the unguis furrow of Beau, which might very legitimately be termed erosion of the nails. But there is this difference between them. The latter shows itself at once at the bottom of the nail, and owing to the rapid development of that structure as quickly disappears, while intra-follicular erosion of a tooth does not appear till later, viz. at the period of eruption. The one is, indeed, a fleeting phenomenon, while the other is persistent and indelible.

* Translation of a communication contributed to the Section on Childrens' Diseases of the International Medical Congress.

Again, a comparison has been drawn between these two forms of erosion—the Dental and the ungual—and the lesion which is known under the name of congenital zonular cataract, and which has been described by German writers, and in France by M. Nicati. And certainly this triple link is consistent with the physiological law, by which the dental organs, the nails, and the crystalline are placed under the same class of tissues.

Confining our attention, however, to erosion of the teeth, it will be advisable to obtain some idea of the reciprocal relation between the exact situation of the lesion on a dental crown in process of development and the date at which the cause intervened. And for this purpose it will be necessary to determine the phases in the development of the dental crowns, and to accurately formulate the state of the dentinal cap in the different follicles at certain definite periods. This has been done in the following table :

TABLE I.—*Showing the condition of the cap of dentine in each of the dental follicles in early life—in man.*

	Date at which the cap of dentine appears.	Height of cap of dentine at birth (in millimètres).	Height of cap of dentine at six months (in millimètres).
A. TEMPORARY DENTITION:			
Incisors { Central ... { Lateral ... }	Sixteenth week of fœtal life	3·5	{ Crown com- pletely formed and ready for eruption. 6·0
Canines	Ditto		
First molars Second molars }	Seventeenth week of fœtal life	3·0	7·0
B. PERMANENT DENTITION:			
Incisors { Central ... { Lateral ... }	First month after birth	{ ...	2·0
Canines	From third to fourth month after birth		
First premolars Second premolars ... }	From fifth to sixth month after birth	{ 2·0	6·0
First molars	Sixth month of fœtal life		
Second molars..... Third molars	Third year Twelfth year		

The data furnished by the above table must not be regarded as absolutely true in all cases; the different epochs thus determined as the result of my own inquiries being subject to variation according to the patient, his constitution, and even the diseases he has suffered from. These variations, which will not exceed a few days in the case of the appearance of the cap of dentine (first column), are much greater in respect to the second column and still more so in respect to the third. That is to say, the date assigned to any given height of the dentinal cap may vary a few weeks and possibly a few months. The figures which I have given represent the average.

Now, the results of the above data in respect to erosion may be summarised as follows:—(1) If a follicle is affected by an intercurrent malady at the commencement of the development of the cap of dentine, the erosion will occupy the free border in the case of an incisor or canine, and the masticating surface in the case of a molar. For instance, I can show a model in which the erosion exclusively affects the masticating surface of the first molars, the dentinal cap of which appears at the sixth month of foetal life. That erosion was due to an accident of pregnancy, which proved fatal to the mother. (2) If a morbid influence of this nature intervenes at a later period, the erosion will be situated more or less distant from the free border, the portion anterior to it in development being healthy for a space exactly proportionate to the period of health which preceded the morbid cause.

Let us now pass on to consider the exact nature of erosion and its different varieties; briefly, for writers both ancient and modern are unanimous on this point.

The essential characteristic of erosion of the teeth is in some cases simply an interference with the simultaneous development of the dentine and enamel, in other cases a complete suspension of their development. If it is a case of slight interference from a trifling or passing cause, the erosion will consist of a simple furrow, very shallow, and often even difficult to recognise. If the interference is intense or prolonged, like the cause which has produced it,

the erosion will be more marked, either in depth or extent, appearing in some cases actually in the form of an annular zone, more or less extensive, and characterised by congenital absence of the enamel, and a profound alteration in the dentine. Finally, if the morbid crises have been repeated frequently and quite close together, a very extensive surface, perhaps the whole of the crown, will be marked with characteristic changes.

Hence we obtain the following classification of the different forms of erosion :

1. Notched erosion of the cutting edge (incisors).
2. Rugose or nipple-like erosion of the masticating surface (molars).
3. Erosion in the form of furrows, plain or dotted, single or multiple. The appearance of multiple grooves one above the other has been termed by a writer in this country—Mr. J. Tomes—step-like or ladder-like erosion.
4. *Erosion en nappe* ; tablecloth erosion, associated with congenital absence of the enamel and a spongy condition of the dentine. It indicates on the part of the morbid interference a duration proportionate to the extent of the lesion.
5. Lastly, entire erosion of the crown of certain teeth, with a corresponding duration of the causative influence. It is termed by the above-named writer “honeycombing of the teeth.”

It seems to me that this last variety ought, on account of the extent and intensity of the lesion, to be placed outside the category of erosions, properly so called. In fact, there is here a complete absence of symmetrical parallel furrow and notches; the crown is altogether disorganised, and as a rule it disappears very quickly as the result of consecutive caries. The duration of the morbid cause must be considerable, and I could cite many cases in which a morbid condition in early infancy, apart altogether from syphilitic or other diathesis, has shown itself capable of producing a lesion of this nature. Here, for instance, is a case in which the front molars and the incisors in both jaws prevented “honeycombing,” and ultimately were entirely destroyed, as the

result of a chronic enteritis, lasting from the first month to the second year of life.

Such are the various appearances of erosion.

My learned friend, Professor Parrot, has made an attempt to modify the above classification, and has proposed to substitute for it the following :

1. *Atrophy of the cusps* affecting the most prominent portion of the tooth. It is very common in the first permanent molars, implying a foetal origin, in the pre-molars of the permanent set, and less marked in those of the first dentition.

2. *Cupuliform atrophy*, with absence of the enamel and laying bare of the dentine ; it is my *erosion en nappe*, associated with the preceding variety or not.

3. *Sulciform atrophy* ; i.e. erosion in the form of single or multiple furrows.

4. *Atrophie en hache*.—This, according to M. Parrot, is not congenital but of secondary and pathological origin. It is by all evidence due to consecutive caries, and has therefore no claim to a place in the category of erosion, which is emphatically a congenital lesion, due to anomalies of intra-follicular nutrition.

5. *Hutchinson's atrophy*.—Notched erosion of the free border.

I will not discuss this new classification, but, with Mr. Parrot's permission, will adhere to the older one, which appears to me at once more simple and more physiological.

In any case the evident result of the above considerations is that there exists a strict relation between these three phenomena—1. The morbid *cause* producing the erosion ; 2. The anatomical *level* of the erosion ; 3. The *extent* of the erosion. These three terms may thus be regarded as constituting a pathological equation.

Another point which it is important to determine is the *identity* in the nature of the different forms of erosion, whatever be their level and extent. All erosions are *one* by nature, and the varieties in which they occur are simply due to the date of the appearance of the morbid cause, to the duration of its activity, and to the state of the cap of dentine at the period of its invasion. Thus the *furrowed* variety,

simple or multiple, is referable to one or more interventions of the cause, the erosion *en nappe* is due to its prolonged persistent action; while the special notched variety (Hutchinson's) is, according to M. Parrot, due to a particular mechanism which may be described as follows:

An interference in the development of the free border of an incisor results in the appearance of a crown, the margin of which is thin and very friable. This disorganised portion is limited by a straight or semicircular collar, above which the anatomical structure of the tooth is normal, and it is the breaking down of this thin portion soon after eruption which subsequently gives the tooth the special aspect described by Hutchinson. This is the only way in which the notched tooth arises.

These facts once fixed in their proper reciprocal relations, and systematically arranged, as shown above, we may pass on to the special object of this inquiry, the etiology of erosion.

The opinions advanced on this point by authors, ancient and modern, may be grouped under three heads.

1. That erosion is due to certain *diseases of infancy*.
2. That erosion is an invariable sign of *hereditary* syphilis.
3. That erosion is connected with *infantile convulsions*.

The view that erosion is due to certain maladies of infancy is that of ancient authors, and, indeed, of all epochs. Ambroise Paré mentions it; also Bunon, Fauchard, &c., and more recently Duval and Oudet. At the present time it is held, with certain qualifications, by Tomes in England and by Broca in France. It appears to me that such a general statement, comprising every malady of childhood, cannot be sustained. If we look, for instance, at a large class of the affections of early childhood, the eruptive fevers, there are unlimited facts to convince us that these maladies seldom occur during the first and second years, and that moreover they are incapable of producing characteristic erosions, unless they are complicated by grave disturbance of the nervous system, of which I shall speak further on. The same may be said of catarrhal and intestinal affections, neither of which present, except very rarely, the rapid invasion and

profound disturbance of nutrition, which are the two factors essential to the production of erosion.

As for hereditary or acquired diatheses, rickets and scrofula for instance, I have long admitted* that they exert a considerable influence on the organisation of the teeth, but this influence, which, owing to its very permanence, must be exerted on the dental organs as a whole, notifies itself by alterations in general form and intimate structure which have no relation to erosion. M. Parrot, indeed, regards scrofula and rickets as manifestations of syphilis, but that is an entirely personal opinion, contradicted at once by the general feeling of pathologists, and by numerous facts. Be that as it may, it is certain that the teeth of rickety children, for instance, are small, atrophied, occasionally deformed, and characterised by general defects of structure and of chemical composition. Here are certain specimens which would properly have fallen into this category, if there had not been a history of grave nervous disturbances, which have left their mark in erosion. Thus we recognise in the same subject the trace of rickets, and the evidence of convulsions, that is to say, proof of the coexistence of two affections.

The second view, that erosion of the teeth is due to syphilis, took birth in England from a work of Mr. Hutchinson's,† published in 1863, and it has been sustained with great authority in France by Professor Parrot.‡ It has no other adherent, at any rate in France, except, perhaps, M. Lannelongue, who seems disposed to accept it.

The work of Mr. Hutchinson is devoted, as we know, to the study of interstitial keratitis in its relation to hereditary syphilis, and it is only incidentally that he mentions, as occurring in the same subject, a peculiar form of erosion, which he really attributes to stomatitis set up by mercurial treatment. Mr. Hutchinson published a series of 102 cases of syphilitic keratitis, from which I select the following facts:—In sixty-three cases he mentions the

* 'Traité des anomalies de l'appareil dentaire,' 1877.

† 'A Clinical Memoir on Certain Diseases of the Eye and Ear consequent on Inherited Syphilis.'

‡ "De la Syphilis Dentaire," 'Gaz. des Hôpitaux,' 1881.

coexistence of notching of the free border of the incisors, but he singularly omits to notice the alteration of the molars, which is, as we know, constant. In thirty-nine cases the condition of the teeth was not noted, or was found to be normal. As to concomitant affections, the article mentions different phenomena allied to syphilis, but says nothing about the co-existence or absence of convulsions. Two patients only are said to be epileptics.

Such are the main points in Mr. Hutchinson's article, but his views have apparently undergone considerable modification since then, and he is now disposed to regard certain forms of erosion as absolutely characteristic of syphilis. During my stay in London, Mr. Hutchinson kindly took me to the London Hospital, where he wished to show me certain patients presenting this special form of erosion associated with interstitial keratitis and hereditary syphilis. This visit was extremely interesting to me, and I cannot thank Mr. Hutchinson too warmly. It brought before me, in fact, many patients presenting a certain form of dental change, and particularly that variety which I have indicated as approaching much more nearly to the combination of lesions resulting from diathesis, than to erosion properly so called. The teeth were badly formed, the incisors having in some respects the appearance of deformed stumps. The patients presented moreover manifest signs of old or present rickets, and of scrofula, but they could not give any evidence as to the existence of convulsions in infancy.

I shall not follow out this discussion any further so far as Mr. Hutchinson is concerned; let me hasten rather to deal with M. Parrot, who, in giving erosion of the teeth the name of *dental syphilis*, has taken up a very decided position.

The arguments of M. Parrot are based upon the fact that erosion of the teeth is found co-existing with certain osseous changes in the cranium, the maxillæ, or some other part of the skeleton; upon the existence of cutaneous maculæ, the result of past ulceration, and of osteophytes; and lastly, upon the relation between the situation of the erosion and the age at which syphilitic phenomena are most apt to

present themselves, *i.e.* according to M. Parrot, from the sixth month of foetal life up to the fourth year.

This theory is open to the following objections :

1. M. Parrot has not as yet brought forward any observation in which the characteristic erosion has co-existed with specific bony changes, and indisputable cutaneous lesions, *without at the same time the intervention of any other morbid factor*—in short, in none of his cases has there been an absolute diagnosis of syphilis. So far from having done this, M. Parrot, carried away by the warmth of his convictions, has gone so far as to diagnose hereditary syphilis *à priori* solely from the existence of erosion. A jaw discovered in a Gallo-Roman cemetery is found to present two parallel furrows on the teeth. M. Parrot deduces from it prehistoric syphilis. A living subject manifests the same lesion. He denounces it as syphilitic, in spite of there being in his family history no tangible evidence of that diathesis. These are statements, the gravity of which will escape no one.

2. I can bring forward a large number of cases in which patients who are undoubtedly suffering from hereditary syphilis present no sign of erosion. M. Alfred Fournier's evidence may be adduced, to the effect that in a long experience he has never been able to verify the relation in question. I may further mention observations which I have myself recently made amongst the Kabyles of Algeria, with whom syphilis has been endemic and inherited for an indefinite period, and yet erosion of the teeth is extremely rare. Lastly, subjects who have presented most marked erosions have been found with indurated chancres, though the majority of syphilographers deny that a man who has inherited syphilis can contract it afresh.

3. A large number of patients present erosion of the teeth in different degrees, in whom no sign of infantile syphilis is discoverable on the most minute investigation.

4. M. Parrot declares that syphilis existed in pre-historic times. Now, I should be the last to deny the antiquity of syphilis ; but on what facts does M. Parrot base his reasoning ? Is it on the Gallo-Roman maxilla alluded to above ? Is it on the fact of eroded teeth having been found in

caverns of the Neolithic period. They present characteristic furrows, no doubt; but these relics are mute as to the fact of syphilis, and we should be equally justified in concluding from them that infantile convulsions occurred in pre-historic times. That, moreover, was, as we know, the opinion of Broca when he put forward the hypothesis that the use of the trephine, the traces of which are found on infantile skulls of the Neolithic age, had for its object the cure of convulsive affections. And, surely the fact of teeth marked with erosions being found in the same deposits, goes to confirm this hypothesis in a very singular manner.

5. Lastly, there is a final striking argument to be advanced against M. Parrot, viz the existence of the lesion, which he claims as syphilitic, in other subjects besides man. Here is an ox's jaw, in which the two central incisors are marked with symmetrical erosions.

Such are the arguments beneath which, in my opinion, the theory of dental syphilis must succumb.

(To be continued.)

THE ORIGIN AND TREATMENT OF CERTAIN IRREGULARITIES OF THE TEETH.

By OAKLEY COLES.*

IN my classification of the deformities of the upper jaw, I have endeavoured to establish the theory that a large number of cases of irregularities of the teeth are due to a malformation of the jaw rather than to a mere displacement of the dental organs. In other words, I have asserted that the arrangement of the teeth is but the expression of a profound morphological change. In continuance of my investigations in this direction, I desire to call attention on the present occasion to that variety of the brachoid jaw in which the region

* Read before the Section of Diseases of Teeth of the International Medical Congress on August 8th.

of the bicuspid teeth is the seat of lateral compression. In order to render the argument clear by which I have arrived at the present conclusions, it will be necessary to refer briefly to the anatomy and growth of the parts which seem to be involved in the development of the deformity under consideration.

It is a fact that will scarcely demand proof or verification that at birth all upper jaws are normal in size and outline. At this date the antra are little more than rudimentary, and occupy but a small space between the base of the alveoli and the floor of the orbit. The intermaxillary articulation is generally normal in character, and the position of the lower jaw in relation to the upper rarely affords any evidence of the changes to which they will afterwards be subjected. Whatever may be the influence of heredity, such influence finds expression during the period of growth, rather than that of development, and structural and functional derangements are manifested and intensified chiefly at a date subsequent to the shedding of the deciduous teeth. In the perfectly healthy subject, the face and jaws will have arrived at a perfect state of development at about the age of puberty. The features of the face will have become permanently marked out by the gradual growth downwards and forwards of the upper maxillary bones and adjacent structures. The chief factor in the production of these results is the growth of the body and wings of the sphenoid. By the agency of this bone the intermaxillary region is carried forward and space provided posteriorly for the increased length of the true maxillary processes. The two glenoid cavities become more widely separated from each other, and the direction of the long axis of their articular surfaces, and of the corresponding condyloid processes of the lower jaw, becomes subjected to important modifications. During the time that these changes are taking place, the antra will have become considerably increased in size by the lengthening in a vertical direction of this portion of the upper maxillæ. Although the maxillary sinus may vary in capacity from one to eight fluid drachms, it should still physiologically bear a definite relationship to the facial angle. To compensate for

the advanced position of the maxillary bones, the palate bones grow in such directions as to fill up the gap that would otherwise exist between the posterior extremity of the dental arch and the pterygoid processes of the sphenoid.

If all the parts involved in the formation of the upper and lower jaws have grown in proper proportion to each other, the teeth will only be subjected to such forms of irregularity as may arise from some purely mechanical condition confined to the normal area of the dental arch. If, on the other hand, the jaws themselves have been subjected to any irregularity or inequality of growth, the entire dental arch will be the seat of well-marked deformity, and the teeth themselves be but an integral and not independent element in the production of the conditions we are discussing; or, to put the case in another way, the teeth are in the one instance the cause of the dental irregularity, whilst in the other, they only give expression to a general maxillary deformity in which they are involved.

For the purposes of the present paper I now wish to call attention to that form of brachoid jaw in which the bicuspid region gives evidence of lateral compression rather than of lateral expansion. In such a case the six front teeth are crowded together; whilst the second bicuspids are implanted with, in a severe example, but a space of five millimètres between them in the transverse direction. The first bicuspids, although inside the dental arch, are not so seriously disturbed. If the deformity has been allowed to progress unchecked until twenty-one years of age, the grinding surfaces of the bicuspid teeth are frequently on a lower horizontal plane than the remaining dental organs of the upper jaw. Or, in other words, in the case of the four bicuspids, we may say that the bite is raised. The external alveolar wall will show compression corresponding to the teeth as measured from side to side, and in a well-marked case pass vertically upwards, or even outwards towards the level of the floor of the antrum. In many instances the lower jaw will be of unusual dimensions, not merely in comparison with the upper maxilla, but also in comparison with a normally developed jaw of the same age. The inter-

dental articulation is, of course, destroyed, but beyond this the horizontal rami and body are unusually thickened, and at both the alveolar and inferior borders present a curious thickening and rounding. The inferior dental arch passes outside the superior dental arch at all points. The mental outline is almost rectangular, whilst the outline of the ascending and horizontal rami is generally obtuse-angled. The soft palate is generally short, as measured from the posterior wall of the pharynx, the vertex of the hard palate is apparently above the normal plane, and the tonsils are almost in every case considerably enlarged.

Externally the face presents certain well marked and characteristic appearances. There is a peculiar flatness and squareness from the root of the nose to below the mental eminence, which I can only describe in the language of an artist, by saying that there is an absence of drawing in these parts. The lines produced by the muscles passing from the superior border and angle of the orbicularis oris are not as strongly indicated as they should be, and the face generally is noticeable as being devoid of those lines which are generally regarded as myological landmarks. The nose is usually small, whilst the forehead, with the remaining frontal outlines, gives a good facial angle.

The cause which I venture to suggest as an explanation of the origin of this deformity is the irregular and excessive growth of the external wall of the antrum on either side. If we remember the changes that occur in the lengthening of the face downwards and forwards, it will not be difficult to understand that an undue rate of growth of the external wall of the antrum would have the effect of pushing that portion of the alveolar arch indicated as the bicuspid region, not merely downwards but also inwards towards the median line of the hard palate. From the fact that the transverse measurement of the second bicuspids normally corresponds with a similar measurement between the posterior deciduous molars, it is manifest that in the cases under consideration where we find the second bicuspids within five millimètres of each other, this region must not only have failed to preserve the outline presented in the infantile arch, but

must also have been subjected to very considerable mechanical forces during that period of growth in which the antra have become developed to their normal size.

I have before alluded to the influence exercised by the body and great wings of the sphenoid, and to the operation of the latter in carrying back the condyloid cavities, and with them the condyles of the lower jaw. To this we must, I think, attribute its abnormal size. Whilst from the evidence afforded by the texture of the hair, teeth, and nails, as well as the enlarged tonsils, we may assume that strumous condition of the constitution, which is generally held to explain the imperfect development and irregular growth of the cranial and facial bones. Professor Humphrey has observed that the prominence of the forehead is proportionate to that of the chin, and that the antra in negroes are small and bear a definite relation in size with the angle of the face. It is, therefore, not unreasonable to infer that in the cases we are discussing in which the frontal bones are vertical and the mental region of the lower jaw correspondingly, if not abnormally, developed, the antra should be abnormally large. My clinical observations do not at present permit me to discuss the relationship between the enlarged tonsils and the increased capacity of the maxillary sinuses, but I trust we have present with us on this occasion those who may be able to contribute to our knowledge on this important point.

I have elsewhere endeavoured to show that the prominence or diminished size of the intermaxillary region is due either to the increased or diminished force exercised through the vomer by the body of the sphenoid, and a case under the care of my friend Mr. Rose, of double harelip and cleft palate that had remained unoperated upon until the patient was thirty-five years of age, will afford corroboration of the soundness of this theory.

The diagrams show the long and well-arched nose and the intermaxillary bones carried forward with the rest of the nasal septum, and thus afford very strong evidence in favour of the assertion that intermaxillary prognathism is the product of excessive growth of the sphenoid operating through the

vomer. In the museum of the Royal College of Surgeons (Teratological Section, 238), there may be seen an interesting specimen illustrating the peculiar form of the walls of the antrum and upper maxillary outline, that I believe we may find in the compressed brachoid arch, as well as the enlargement of the lower jaw to which I have already referred. In a paper read before the Royal Society of Edinburgh some twelve years ago by Dr. Smith, some inter-bicuspid measurements were given of a series of cases of congenital cleft palate, and the author of that communication attributes the lateral compression in such instances to "a misdirection of growth dependant upon the absence of the mesial structures, while the superior maxilla is becoming, as age advances, elongated downwards by the expansion of the antrum." At that time I dissented from such a conclusion, but my later investigations have induced me to think that Dr. Smith was right and I was wrong; I gladly avail myself of this opportunity of saying so, and it will be seen that I have adopted the same explanation for the origin of the compressed brachoid arch.

Time will not permit me to enter at any length into the question of treatment, but I would submit the following points:—1. That if expansion is tried, it should be expansion of the jaw with the teeth *in situ* in the first instance, and regulation of the teeth individually as a subsequent operation, rather than expansion of the *dental* arch by pressure applied to the teeth and their alveoli. 2. And next the desirability of extracting the teeth that are out of position and then restoring the contour of the arch by expansion. This treatment of course applies only to the more severe cases.

I am induced to bring this point forward for discussion as there seems to me a danger that we may in the pride of our professional skill, submit our patients to greater pain and risk by saving the teeth than by extracting them.

THE PREDISPOSING CAUSES OF DENTAL CARIES.
MR. MUMMERY'S QUESTIONS.

By JAMES HARDIE, Alloa.

1. I FIND that the teeth of those living in low-lying, marshy lands, are, in the majority of instances, inferior to those living on high lands.

2. Among coal miners decay of the teeth is very prevalent, and I have had most convincing proof that water impregnated with sulphurous acid is most injurious, not only to the teeth but also to the general health. I have known families and individuals who frequently use lemonade and other aerated waters, who suffer from indigestion and decayed teeth, unquestionably arising from the use of those drinks.

3. The teeth of factory hands I find are more liable to decay than those of the agricultural classes, owing to confined and sedentary work and defective diet.

4 and 5. I have observed among sailors in several large seaport towns that there is a decided difference in the state of the dental organs. In those who faithfully masticate the salt junk and hard biscuit not only are the teeth healthy and the jaws more fully developed, but I am certain in my own mind that the teeth are better developed and larger than in ordinary people. This I am fully aware is entirely a new departure from the ordinary theory that the teeth do not grow any larger after eruption, but I would ask, if the bones expand and grow, why not the teeth under favorable conditions? I also find among sailors that those who soak their biscuit in hot tea or coffee and bolt it and the hard meat without proper mastication, in many cases before they are twenty-one, they have a mouthful of decayed teeth and stumps.

6. I can testify to the marked superiority and healthy state of the dental organs of those who live principally on oatmeal in the form of cakes and porridge, as also home-baked bread

made from pure wheatmeal, as compared with those who live on bakers' white bread, tea, &c., and also to the injurious effects of porridge insufficiently cooked and new bread on the stomach and teeth.

7. The frequent use of sweatmeats of any kind, especially in those who are confined and sedentary in their habits, causes acidity in the stomach, presumably from fermentation, and the teeth consequently suffer.

9. The removal of families from city life to the country, with improved diet, I can say, from my experience, makes a marked difference in the health of the teeth; but I am not prepared to say that the teeth of children born under those conditions are better than those in the elder. I do not think, however, that there can be any question that they must be better than they would be if born under unfavorable conditions. As, unquestionably, the fact of the mother living on healthier food and in a more healthy place, the general health of the child must be benefited, as is the case where the child is given to a healthy woman to nurse.

11. The only instance I know of resulting from intermarriage, was a case where the child was years before it could speak; but I have no idea as to the state of the dental arch.

12. I have seen many cases in which I have no doubt the teeth have been injured by over study in childhood, as also the general health, and from want of attention to see that the child masticates the food properly, which parents and nurses invariably neglect.

Finally, I consider that the cause of decay is the presence of acid in the mouth, excepting possibly in extremely rare cases of what I would term dry rot in adults, where the decay has a dry powdery consistence.

I also agree with Mr. Catlin that keeping the mouth shut tends to preserve the teeth.

I consider that change of temperature in the food is the cause of loosening of the teeth.

Hospital Reports and Case-Book.

CASE OF NECROSIS, WITH ANCHYLOSIS OF SECOND MOLAR AND WISDOM TOOTH.

By WILLIAM HODSGKIN HOPE, Wellingborough.

A CASE of necrosis, ending rather singularly, came under my notice a week or two back. Occurring in the upper jaw of an elderly patient, and accompanied by repeated attacks of pain and swelling, it was clear that the tooth affected (which was capable of a somewhat extended movement under pressure) was the second molar, right side. The scant ceremony which it displayed in progressing from bad to worse, left no room to doubt its serious character, and so helped to deter-



mine at once upon "action," indeed, such violent action, that it might be better named "extr(a)action." It stood alone, and when extracted, presented a somewhat strange appearance, the adjacent wisdom being obliquely attached by firm bony union to two of its fangs as shown in the annexed woodcut. In conclusion, I may

say that no difficulty occurred afterwards, and that the mouth healed rapidly.

THE Students' Society of the National Dental Hospital gave a *conversazione* in great Portland Street on Friday last. The old students' dinner we hear is to be held at the Guildhall Tavern on November 16th.

British Journal of Dental Science.

LONDON, OCTOBER 15, 1881.

DENTISTRY AND DARWINISM.

It is the fashion nowadays to arrange every problem in terms of the Darwinian theory, and to look at every question with evolutionist eyes. According to some, the last and best product of evolution is the theory of evolution itself, a knowledge of which is to equip man with new powers in his struggle against his environment, and render still more certain the survival of the fittest. In fact, every theory of life or view of ethics which has obtained largely amongst mankind has been, so to speak, a product of evolution, in so far as it is the survivor of rival theories, and has proved itself not incompatible with the higher evolution of those who have held it. Any creed which handicapped its adherents in the life-race would necessarily soon die a natural death. Now, if there is any ethical creed which, from its antiquity and from the numbers by whom it has been believed, if not practised, might lay a claim to the respect of the evolutionists, it is that creed of Christendom which it is now the fashion to dignify with the name of altruism. Accordingly we find that even by the evolutionist school, "do as you would be done by," is regarded as the most successful ethical generalisation of mankind, as the theory of evolution is its most successful intellectual generalisation. Unfortunately, it was soon seen that these two generalisations do not invariably agree, and it has ever since been the unceasing effort of Darwinian philosophers to find a means of reconciling them. It is evident that while on the evolution theory Nature is careful of the type, she is careless, not to say cruel, where the individual life is concerned. Altruism, on the other hand, gives all her care

to the individual, and leaves the ninety and nine to go after the one lost sheep, which, if she were an evolutionist, she would think herself well rid of. Altruism waits at the prison door to reform the discharged criminal, goes into the night streets to rescue the unfortunate, watches by the couch of the scrofulous and nurses him back to health, forgetting that all her pious care is but preparing the ground for a new harvest of criminals, courtezans, and consumptives. Evolution says meanwhile, let them live if you like, but beware how you let them give life to others.

The above, shortly expressed, is the riddle of existence which is troubling modern philosophy; or, in the words of a writer in the current number of the 'Nineteenth Century,' "the perplexing problem of reconciling interest and duty, the individual and the general happiness."

It is not perhaps obvious at first sight how this lengthy preamble applies to any subject in which the readers of this journal are generally interested, but a few moments consideration will show that there is something in common even between Dentistry and Darwinism. It is evident, for instance, that evolution has a good deal to say to dental caries. Indeed, some evolutionists go so far as to threaten that man will in time become an edentulous animal. We will pass over that, however, merely suggesting the hope that we may find in the theory of evolution itself a weapon to provide against what would be, for our profession at least, so very undesirable an eventuality. Our desire at present is to look at the connection between evolution and Dentistry from another and, perhaps, more trivial point of view.

History, anthropology, and personal observation, all combine to prove that the teeth, whether in a natural or manipulated condition, must be regarded as one of the most important sexual attractions, especially in the female sex. A Central African young lady with unfiled teeth would probably have as much difficulty in securing a mate as a European girl whose incisors were highly carious or deformed. *Cæteris paribus*, a woman, and in less degree a man, with unsightly front teeth, would inevitably be worsted in the matrimonial struggle. This would in some measure explain

why the incisors and canines are less liable to decay than the back teeth, and also why this comparative immunity is lost after the marriageable age is past—a fact which we believe is one of general observation. On the other hand, a perfect state of the molars is not a very important factor in matrimonial success, nor is it absolutely essential to the production of healthy offspring; so that the natural tendency to the elimination of molar decay would be very slight indeed.

Such would be the natural course of events if men and women were left to their own devices, and gifted only with those ornaments with which nature has seen fit to endow them. But since the perfection of modern mechanical Dentistry, and the assumption by the Dentist, according to Dr. Mordaunt Stevens, of an æsthetic function little inferior to the art of the sculptor, the natural play of evolution has been interfered with, and the race is likely to be not to the individual with the best teeth, but to the one with the best Dentist. Thus the next generation will possibly see the front teeth approaching to the back teeth in the frequency of their decay, while the octogenarian dames who now occasionally startle us with their strong incisors will be seen no more. These are grave results; but is the Dentist on that account to forsake his altruistic creed and cease to do for the individual in the interests of the race that which in reversed circumstances he would wish the individual to do for him? The ethics of Dentistry would be very advanced if they counselled such a course. No! let the philosophers fight over their ethics, and perhaps by the time their problem is solved, the Dentist may have cut the knot by stopping tooth decay altogether.

WE have the honour of publishing, in our correspondence columns, a letter addressed to us by the Hon. Secretary of the British Dental Association, with respect to the expurgation of the Dental Register. Mr. Turner has not quite appre-

ciated the drift of the remarks in our last issue. We certainly never intended to pay him the very poor compliment of suggesting that he was in any way ignorant of the precise bearings of the policy he so ably directs. Our fear was and still is that the members of the Representative Board of the British Dental Association are not all equally clear as to the exact results to be gained from the measures for which they have assumed the responsibility. We may be wrong, and for some reasons we hope we are wrong, in our surmise; still our impression remains that the members of the Association are trusting their leaders rather too much, and their own reason rather too little.

No one can wish for a pure Register more ardently than we do, and if it could be obtained by any means, certainly and quickly, we should be willing to see great sacrifices made for it. But what we see very plainly, though we fear the members of the Dental Association do not see it equally plainly, is that their present policy, however successful, will leave the Register very little purer than it is. It will not touch the great advertising quacks, who do more to discredit the profession than all the hairdressers and herbalists put together. It will not touch one quarter of the men who have fraudulently returned themselves as practising Dentistry separately while following another occupation. Its main force will fall on a few hundred chemists' assistants who, though dubbed "impostors" by Mr. Turner, have been expressly absolved from any suspicion of fraudulent intentions by the Dental Committee of the Medical Council (see 'Dental Proceedings of Council,' 1881, p. 193). If they had used—as they were quite entitled to do, and as they would have done if they had been the impostors Mr. Turner makes out—the Schedule originally attached to the Act, instead of that substituted for it by the Medical Council, they could have snapped their fingers at the Dental Association. That the Act ought to have been so drawn as to exclude such practitioners, we will readily admit; but that is a very different

thing from admitting the expediency of wresting the meaning of the Act, so as to exclude them when once admitted.

AFTER all, the whole question is a very trivial one, and we cannot understand an association, which might do such truly noble work, frittering away its time and resources upon it. Writers on mental philosophy tell us that the mind which begins by valuing certain things—such as method or money—as means to a desirable end, often grows in the end to value the means for themselves. This seems to us to offer some explanation of the policy of the leading Dental politicians. They have been working so long for a Dental Register as a means to the elevation of Dentistry that they have at length come to regard the means as the be-all and end-all of their existence.

WE are glad to chronicle the birth of a new local Dental association. A meeting was held at Norwich on Wednesday, on the 5th inst., when it was determined to form a Dental association for the eastern counties, embracing Norfolk, Suffolk, Essex, Cambridgeshire, Lincolnshire, Northamptonshire, Huntingdonshire, Bedfordshire, and Hertfordshire. The majority of these counties being duly represented, the necessary by-laws were agreed to, and officers and provisional committee duly appointed. The first annual meeting is arranged to take place in April next.

THE following anecdote has been going the round of the foreign Dental journals. A gentlemen went to an "American" Dentist practising in Paris (and born, says the veracious narrative, not many leagues therefrom) to have his teeth seen to. The waiting-room was crowded, but he sent his card into the practitioner and was at once ushered into his "office." The operating chair was occupied by a lady who was apparently being put under gas. "Come a little

“nearer, Doctor,” cried the Dentist, winking at the new comer, who, flattered by the easily-earned title, came and stood by the patient. The extraction was performed, and the lady left the room. “It is your turn now,” said the Dentist, “that is the least return I can make.” “For what?” asked the patient. “Why, you see,” replied the American, “there are many people, especially ladies, who will only take the gas in the presence of a doctor. Well, I call in some patient or other, dub him doctor, and pocket the extra guinea.”

THE conductors of the ‘Dental Record’ started as we all know with very high aspirations as regards the elevation of Dentistry. In its last number they have absolutely eclipsed themselves, and have almost elevated Dentistry out of their ken. Of forty-eight pages, not quite twelve are directly concerned with Dental matters.

WE hear that the three volumes of ‘Transactions of the International Medical Congress’ will probably be ready for distribution by next Christmas. The Secretaries of the Sections have all been hard at work since the Congress, preparing the papers and discussions for the press; and, if the ‘Transactions’ are ready by the promised date, they and Sir William MacCormac will deserve more than all the praise that has been showered on them. A certain number of pages have been allotted to each section, which will in some cases allow of the publication of all the papers read. It is a gratification to us to find that, as a result of the joint arrangements made by the British Dental Association and ourselves, the proceedings of Section XII have been more faithfully reported than those of any other section. Our own summary of the proceedings has been borrowed, with all its faults, by several Dental journals, sometimes, we regret to say, without acknowledgment.

The Dental Examiner.

[*Note*.—Dental materials and appliances intended for notice in the “Dental Examiner” should be sent to the Editor at 11, New Burlington Street, W. All preparations not generally known should be accompanied by a lucid description and a clear statement of their composition. The formulæ supplied *will not be published* unless a written permission is given by the maker.]

MATERIALS RECOMMENDED FOR FILLING TEETH

(*continued*).

BEFORE proceeding with the subject commenced last month, we wish to thank those manufacturers who have given us an opportunity of examining their various stopping amalgams, but it is necessary to explain that all preparations must be accompanied, in confidence, by the formulæ of their composition, if a notice is desired in the ‘Dental Examiner.’ It is for all practical purposes useless to speak of a preparation unless its composition is known, and to have to subject all materials to analysis would be too severe a tax to merit serious consideration. When a material is considered of great value an essay may be undertaken—that is, if the maker refuses to disclose its composition—and the result will be published; but in the meantime all preparations must be accompanied by their formulæ, which will be regarded as strictly private communications.

Every one will understand that stopping materials require to be tested in the mouth, and we hope from time to time to return to those casually noticed, when a more reliable report can be furnished. The impression entertained by some that we are unwilling to allude to any but *new* compounds is thoroughly incorrect; we desire to express exactly a contrary opinion, believing that many old and valued preparations are now being neglected in favour of newer and more showy compounds. So that our rule is complied with and the composition stated, we desire to give a fair and unbiassed opinion of every material, no matter for what purpose it is intended, so long as it is useful in Dentistry.

In the former part of this article we have alluded to the manner in which caries is arrested by amalgams of copper, a fact established by years of observation, and confirmed by hundreds of witnesses. The solidity of these plugs, we thought, with all their unsightliness, to be no longer open to question, but Mr. Fletcher seems to think otherwise. He says, "As generally used, copper amalgam makes perhaps the most leaky plug of any known material, and many plugs affording absolute and permanent protection are so loose that their shake can be distinctly felt."

We question both these conclusions. We have seen copper amalgam fillings in hundreds, we might say in thousands, and we have compared notes with others who agree that a leaky plug is a very remarkable exception with this material. We also question whether a *leaky* plug can ever afford "absolute and permanent protection," as Mr. Fletcher states; our feeling is to the contrary, although, as we have already stated, we attribute the arresting of disease more to the action of the salts of copper, and it is a question whether such salts might not be used with advantage for that purpose.

Although it will hardly repay any private practitioner to make his own alloys, still it may be interesting to give the composition and the manufacture of some tried and reliable kinds that have been in use for years.

A very superior preparation is that composed of five parts fine gold, fifteen parts fine silver, and twelve parts pure tin. The gold and silver to be melted together in the usual way, and the tin thrown in while in a state of fusion. To be well stirred with a clean iron rod and run into an ingot, then broken up and remelted twice; once more thoroughly well mixed, and run into a suitable form for filing. This alloy keeps its colour remarkably well, and takes a high finish, but the filings should be made fine and will require five grains of mercury to every four grains of alloy. Another, of a cheaper kind, which also works exceedingly well and sets rapidly, is composed of fine gold four parts, silver twenty-four, and tin ten. This will require a larger quantity of mercury in mixing, but its colour is fairly good and it does not stain the tooth. In all these preparations, if

the metals are perfectly pure, not more than $1\frac{1}{2}$ per cent. will be lost in melting. After filing, all iron should be removed with a magnet. Although, as we have said, it is hardly profitable to make one's own alloy, so much being lost in the filing; still, those who are at a distance from the centres of commerce will find the above gold, silver, and tin amalgams, exceedingly useful.

THE ECLIPSE PLATINUM AMALGAM, prepared by Mr. John Jamieson, jun., Glasgow. The introduction of platinum into the manufacture of alloys for stopping purposes is a point of very great interest, and, as far as our experience goes, this metal is even to be preferred in an amalgam to gold. For a long time it was believed that platinum could not be got into combination with tin and silver, and even then it was considered questionable whether it did not exist simply as a mechanical mixture. Every chemist knows that platinum can be melted with silver and a mixture of platinum and silver has been sold as dental alloy for years. Carrying out this idea, mixtures of platinum, tin, silver, and gold have been made for stopping amalgams, and the one now introduced is a very favorable specimen, although it is made without gold. The filings are exceedingly fine, and require about three grains of mercury to four of alloy to convert them into a fine smooth paste. It does not, as Mr. Fletcher contends all platinum amalgams should, set rapidly. A slight heat is evolved and the amalgam continues to set slowly, forming a plug that can be burnished on the same visit? Judging from its composition and the tests we have subjected it to, it may be regarded as a very good specimen, and we shall watch its condition in the mouth with interest. Our opinion is every day becoming more confirmed, that platinum may be substituted for gold in all these alloys; but time alone must decide how they will keep their colour in the mouth.

Literary Notices and Selections.

DENTAL SURGERY—NOT DENTAL MECHANICS.

THE opinion generally obtains, says Mr. Shumway in an excellent paper on the above subject, that operations upon the teeth are only mechanical. All through our literature are to be found expressions like this: "The mere act of filling a tooth is a mechanical one." If we would elevate the standard of Dentistry it is time this teaching should cease. The act of filling a tooth, if properly understood, is a surgical one. In the whole range of Dental operations I know of none in which mechanics should play so small a part as in that of filling teeth, if preservation is the end sought. It is my conviction that the degree of failure has been in the proportion that the machine has taken the place of surgery. The process of decay is a chemical one—the result of violation of natural law. The means of arresting it and preserving the teeth must be in correspondence with this same law. Mechanics is the application of forces over which man has control to arrest nature and subject her to his will. The operation of these forces is artificial, not natural. Nature refuses to be bound by mechanical rules. She is not governed by mathematical demonstration. To reduce Dental operations to mechanical formulas is to take Dentistry out of the domain of surgery, and make it simply a trade. It then ceases to grow; the incentive for further investigation and discovery is gone. If the act of filling a tooth is mechanical merely, then Dental science, so far as filling teeth with a view to their preservation is concerned, is at a stand-still. The indifference, it might almost be said contempt, in which the operation of filling teeth is held by those who may, with truth, be called the best class of practitioners, shows the extent to which mechanics has crowded out surgery. This indifference may be real or affected.

That it exists there is abundant evidence. Ten years ago clinics were the great attractions at Dental conventions. Now, as a professor of operative Dentistry in one of our reputable schools remarked: "They have ceased to interest; the profession have tired of them; the filling of a tooth is only mechanical, and from it there is nothing to be learned." This operation, then, on which the future of Dentistry must depend, if it would maintain the dignity of a special calling, has ceased to interest the Dental profession. This is the legitimate result of Dental mechanics.—*Dental Cosmos*.

PROFESSION OR TRADE.

WITH the above extract it is interesting to compare the opinions of another able American writer, Dr. G. W. Weld, of New York. A profession, he writes, demands a knowledge of the liberal arts—a trade or occupation a knowledge of a mechanical art. A man may be eminently able to extract a tooth, make a set of artificial teeth, and even build up a golden crown on a human tooth, and still be as much of a mechanic as if he were engaged in an occupation not considered a profession. Physical and mental labour cannot go hand in hand beyond a certain point. As a rule, the one incapacitates a man for the other in proportion to the amount of nervous force exhausted in each case. He who sits at a work-bench during the day, or stands up at a Dental chair for half a day malleting gold, cannot, from the very nature of things, rightly call himself a member at least of a liberal profession. It is for this reason that we have been taught that the professional status of Dentistry depends upon the proposition whether the decay of the teeth is due to a mere local or constitutional cause. In a word—the term profession, in the sense here intended, requires a knowledge of the morbid conditions of the human system, leading in some

way to the disorder of the dental tissues. The Dentistry of the future will require something more than the title of D.D.S. to gratify its ambitions. The gynæcologist becomes proficient in practice by a special course of instruction. The aurist and oculist the same. Why should Dentistry, of so much importance to the public, have institutions of learning separate and distinct from medical institutions? When all the Dentists in the land are titled M.D.'s and their diplomas mean something more than a mere roll of parchment, when they understand pathology and are able to differentiate the various kinds of retrograde metamorphoses in the human system, then, and only then, will Dentistry be recognised as a part of medicine.—*Johnston's Dental Miscellany.*

SANGUINARY CALCULUS.

UNDER this term Dr. L. C. Ingersoll describes that hard, dark, structureless deposit, frequently found on the root of a tooth, sometimes in a line of granules extending from the apex to the neck, or very often encircling the neck immediately beneath the free edge of the gum. It has been generally imagined to be of a salivary origin, but the consideration of a few facts pretty clearly indicates that it is deposited directly from the blood and not from the saliva. This form of tartar is usually found on teeth affected with the disease that has been termed "alveolar ulceration." The most prominent manifestation of this condition is that there is no circumscribed abscess cavity containing pus, but a process of ulceration resulting in the constant discharge of a thin, watery, almost inodorous fluid, round the neck of the tooth from beneath the free margin of the gum. This fluid is composed chiefly of the serum of the blood, containing, in addition to its own soluble elements, some of the waste material disengaged in the inflammatory process. Becoming

speedily decomposed on contact with the air, it deposits the hard, dark-brown incrustations with which we are familiar. They are usually to be found on dead teeth, but may also be seen on those with healthy pulps. In the latter instance the formation is generally due to irritation of the free margin of the gum, consequent upon the accumulation of salivary calculus round the neck of the tooth. The edge becomes thickened, congested liquor sanguinis is effused, and speedily that part resting on the gum becomes mottled with small dark patches. The tartar then gradually assumes a dirty-brown colour, shading off beneath the free margin of the gum almost into a black; whilst in this situation are also found small, dark, hard nodules encircling the necks of the teeth. We have here, then, instances of the two kinds: that deposited from the saliva, yellowish in colour, and another deposited from the serum of the blood, much less in quantity, and darker and harder. The hardness is probably due to its more purely mineral character, as from its position particles of food and epithelial scales cannot have ready access to it during its formation. A very potent reason against a salivary origin is that it is frequently found in situations in which the saliva certainly cannot freely circulate even if it can find access to them at all. Sanguinary calculus is therefore one of the results of inflammatory action, being deposited from the exudation of the liquor sanguinis; whilst salivary calculus, on the other hand, is a cause of inflammation and not a result.—*Ohio State Journal of Dental Science.*

AN EXPERIMENT WITH NITROUS OXIDE GAS.

IN a reply to an article in an American Journal *apropos* of the subject of anæsthesia, an interesting experiment is reported in the "Ohio State Journal" of Dental Science, with the view of proving that nitrous oxide supports respi-

ration. There is something so novel not to say extraordinary in the details that it is well worth reprinting. A terrier was made to breathe the gas for an hour the air being rigidly excluded. During this period there were no evidences of asphyxia; sometimes the pupil was dilated sometimes not. Sometimes the dog was conscious sometimes not. Something supported his respiration, for in less than two hours after his release he killed over seventy rats. On this the editor comments as follows: "We may be quite unable to persuade others that nitrous oxide supports respiration to any extent, yet we through misfortune know that it does. A few weeks ago we wished to have a deep-seated burrowing abscess opened. We laid a bistoury beside the chair, sat down and breathed nitrous oxide to complete unconsciousness. As soon as consciousness returned we seized the instrument thrust the blade into the tumour to the depth of an inch and cut out, and this without the slightest pain. How can anyone believe that we could have thus calmly operated on our own body if we had breathed only nitrogen or carbonic acid the same length of time?"

THE ÆSTHETIC IN OPERATIVE DENTISTRY.

THE following paper by Dr. James Truman, of Philadelphia, was recently read before the Odontological Society of Pennsylvania.

We have certainly reached a stage in the progress of our specialty when the question should be calmly and rationally considered: What constitutes æsthetic Dentistry? We have been so occupied in the past forty or more years in building up a profession, that the details have in some measure been lost sight of, and they are only now just beginning to receive the attention which their importance demands. This feeling is manifested in the questioning of old ideas, and a more careful consideration of the new; in a determined seeking

for truth regardless of authority,—an iconoclastic disposition which, unless properly directed, may run to serious evil; in a word, the profession in its ideas and practices is fast entering a condition bordering on the chaotic. It is therefore well to stop to consider whither tends this unsettled condition, and what means can be taken to organise the active thought and direct the practice to a course of procedure worthy an intelligent body of workers. This cannot be accomplished by one man, but must be the work of many. That the present is an important period for active effort must be conceded; for if the disruptive tendencies, now so prevalent, be not properly directed, it is apparent that there must be a serious deterioration in theory and practice as well as in æsthetic culture.

The Dentist of to-day is the outgrowth of the Dental mechanism of the past, whether we view it from the standpoint of the so-called operative or the mechanical branch. The ideas prominently ingrafted on the earlier workers were purely of the latter order. To be a good worker in metals as a base for artificial teeth, or a good filler of cavities, was the sole aim and ambition of the earlier Dentist. The difficulties that hedged round both these performances naturally induced a close absorption of all the intellectual powers of the period, and that it was not unworthily bestowed, the skill manifested to-day is the honorable evidence. This constant and earnest effort to do a few things well, while worthy of the highest commendation, has a tendency to force the mental strength into set channels, and to just that extent weakens its power to grasp subjects in their entirety. To illustrate—the Dental mechanic, intent on making an artistic piece of work *out of the mouth*, has failed to cultivate, it may be, the ideal of an artistic structure *in the mouth*, and, while his lines of beauty may be skilfully arranged for the one, they are out of proportion and inappropriate for the other. So the filler, in his anxiety to save teeth, builds his gold until it assumes and exceeds, in his eye, the loveliness of nature. Thus, gradually, but surely, we have developed mechanism in both branches at the expense of the artistic, while the true work should combine all that is possible of

both. These thoughts are, doubtless, truisms to all, and will probably find no opponents; but, while the facts are admitted, such is the perversity of human nature, that they are rarely acted upon. Thus, while the extreme of effort in the operative has brought our gold-work in the mouth to such a degree of mechanical perfection, that any advance with that metal cannot be looked for or desired, it is evident that this very perfection has generated sentiments of opposition, in both patients and operators, that has resulted in the development of a new school that entirely repudiates this metal. Between these two extremes we have all shades of thought and practice.

It is not the purpose of this brief paper to enter upon the discussion of this subject, but rather to suggest another direction that may possibly be of value to some who aim to be something more than mere extremists. We are not all molded alike. We cannot all be painters and sculptors; neither are we all so formed by nature that we can work up a beautiful ideal, or, even if capable of so doing, give it practical form.

Dentistry to-day occupies a very similar relation to æsthetic culture that our country does to the arts. It has been the constant reproach of the old world that we were a nation of shopkeepers and mechanics, and we have been sneeringly told that high art was an impossibility from such a basis of unrefinement. The true observer of men and nations, and, above all, of the gradations of mental progress, well understands that the higher expressions of intellectual force are but a combination of lower and, it may be grosser forms. The mechanic at his bench, the house-wife with her needle, are each in their way cultivating form and ideality, and laying the foundations for a higher expression of these same qualities, and rendering it possible for the finest manipulation of art in the future. Thought concentrated in one direction in the parents becomes, by the law of inheritance, the fixed and higher talent in the child, and thus, step by step, and as the result of progressive development, the advances are made and conditions established for the ideal artist. What is true of individuals is true of nations, and

it is reasonable to infer that the development of this country must be towards the finest exhibition of artistic excellence the world has ever seen. This is already becoming manifest, and, unless unforeseen drawbacks occur, the prophecy of a Munich professor, made to an artist friend, "that the time would come when Europe would send pupils to America to study art," will have its full realisation.

The same law of evolution holds good in our profession; and, while we may not be equal to our idealistic conception, we may at least reach out toward it and endeavour to correct each other, and so hasten a better day. It is with this idea that this paper has been written.

The Dentistry of the present is essentially, in many of its manifestations, barbaric. It is the unrefined expression of the mentality of the bench-worker, not yet advanced through the natural siftings to a higher condition, and hence we witness those fearful monstrosities in both sections of our art, but especially in that of the mechanical branch. The operative section has been allowed to have its own way, drifting more and more into pure mechanics, and becoming more and more self-asserting, more and more a violation of artistic laws, and more and more depending for its success on the skill of the mechanic rather than the brain of the operator. The point in the history of the profession from which we may date this departure was the introduction of cohesive foil. This, while it marked a great advance, introduced a tendency to exaggerated expressions and exaggerated ideas of the value of gold. If it did not give rise to the now exploded maxim, "The tooth that is worth filling at all is worth filling with gold," it at least enforced it; and he was a bold man who dared to express a contrary opinion. The extreme limit was finally reached, and a natural reaction set in with its equally reprehensible ideas.

That gold can be worked up into forms of beauty, it needs no argument to prove; that it can be made to serve the purposes of preservation and use every day demonstrates; but that it adds anything to beauty, when combined with the natural organs, all who claim any taste must deny. It belongs to the incompatibles; its strong contrasts of colour

must ever debar it from the roll of the beautiful in this connection, and yet, just here, in some minds, it has its greatest value. In nature we have the gradations of colour peculiarly demonstrated in the teeth, changing from one colour at the edge to a darker at the neck, until, through almost imperceptible variations from teeth to gums and from these to lips, we have a perfect harmony of expression. Ruskin says, "No colour exists in nature, under ordinary circumstances, without gradation. . . . The preciseness and pleasantness of the colour itself depends more on this than on any other of its qualities, for gradation is to colour just what curvature is to lines, both being felt to be beautiful by the pure instinct of every human mind, and both considered as types expressing the law of gradual change and progress in the human soul itself."

The building up of a tooth was in former years considered the highest expression of our art. So beautiful was it in the estimation of some, that to make a gold front tooth, and shape it in the form of the original, was regarded as an exquisite piece of Dental mechanism, and the operator viewed his skill with the satisfaction of having accomplished a masterpiece. In one sense this was true. It was a masterpiece of pure skill, but at the same time it was direct evidence of skill misapplied in the production of a contribution to a barbaric taste. It had the merit of being useful, while the gold ring in the nose of the savage has not ; but both deserve to rank with the productions of an uncultured era. The production of the few teeth of this kind has been followed, through the introduction of machinery and the easier application of force, by the presentation of many such operations, until we have the mouth in a glitter of disagreeable contrasts that are disgraceful to us as a profession, and are building up in our patients false standards of taste, for which the doubtful advantage of use does not furnish a compensation.

The so-called axiom, that "any tooth, no matter how defective, if it can be saved and made to subserve a useful purpose, is better than a false one," has had largely to do with this. That this is based on incorrect ideas and mere assumption, must be apparent. Even under old modes of

insertion of artificial teeth it was never true, and now, with the advances made in this department, it is even less so. It is assuming that artificial teeth are partial failures ; that they are, at their best, but imperfect substitutes, while the truth is that, in the large majority of cases, they are not only substitutes, but perform the work so perfectly that the wearers do not appreciate any difference in the ability to masticate food or the correct articulation of sound between these and the natural organs. This matter has received careful consideration from the writer, and it is a positive conviction that the attempt to save a certain class of teeth at the risk of permanent disfigurement of the patient, is a stretch of professional skill wholly unwarranted. That this will be regarded as an extreme statement, and at variance with accepted teaching, I am well aware, but it remains for those who controvert it to demonstrate its incorrectness. I wish, however, to be distinctly understood at this point. While condemning the undue exhibition of gold on the anterior teeth, I do not wish to be understood as opposing its free use in posterior teeth, for here use supersedes taste ; indeed, that does not enter at all as a question at issue. Neither would I condemn the moderate exhibition of gold on approximal surfaces with labial fractures, but I do condemn that excessive use of this material on the labial surfaces, which carries, by its incongruity, a sense of disgust to every beholder. I need allude here only to the minor manifestation so frequent of this sin against taste in the filling, oftentimes large, of all the anterior teeth at the upper labial thirds with gold. The expression that this gives to an otherwise beautiful face need only be seen to be fully appreciated. Attempts have been made in this form of caries to insert a section of porcelain or of tooth-bone, but this, while an effort in the right direction, has been only partially successful, and it is by no means the general practice. Gold is the one material we have for this operation, and any departure from its use is regarded as worthy of severe condemnation. It is true we have no material that equals it for tooth preservation, but it is a question whether a poorer one and one nearer the colour of the tooth would not be better than a piece of work

which is a constant monument to our ignorance of the law of contrasts. Yet, while this is asserted in regard to these peculiar and most annoying cavities, even here gold may have a very proper place, provided an intelligent consideration of the probable issue of such an operation be carefully made—such as length of lips, facial muscular movements in talking, laughing, &c., the sex of the individual, and the extent of the lesion.

It is not to gold, primarily, that objection is made, but to its use in inappropriate places. As a material for filling, it will always probably, retain a royal position; properly used, it is the best material for a very large class of cavities; but to assert that its proper place is to restore lost teeth in the anterior parts of the mouth, or to universally repair lost sections, is to claim that which no refined intelligence can for a moment tolerate. The influence of such work is demoralising on both operator and patient. It is an ever-present sign of partial culture, and partial culture in art mechanism, as in everything else, is just so far an evidence of inefficiency, if indeed, it is not positive evidence of it. The true Dentist is something more than can be made by a mallet and a sheet of metal. He is a combination of varied experiences of the past and present. He aims to grasp reasons and to search into the philosophy of things. His diagnoses and prognoses are carefully made, and his course is guided by his conclusions. He regards his material, whatever it may be, simply as a tool, and, as he cannot effect the best results with one form of instrument, he must make use of many. He believes that the intelligent adaptation of means to ends is better than a blind following that leads only to inconsequential results. He refuses to replace nature's destructions by a disfigurement of nature; and, above all, he aims to combine the practical with the æsthetic, that use and beauty may go hand in hand, and through his work his profession may receive a new impetus toward a higher standard of excellence.—*Dental Cosmos*.

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

Monday, August 8th.

A GENERALISED TREATMENT OF IRREGULARITIES.

MR. WALTER H. COFFIN read a paper on the above subject. On any case of irregularity presenting for treatment, he said, the practical question would be, What is the best to do, and what is the best way to do it? A classification and analysis, in even their infinite variety, of a sufficient number of instances, and the results of their treatment by every possible means, should afford at least an approximate answer to these, and the no less important questions—What not to do, and how to avoid doing it? The few models shown had been selected, as fairly representative, from several thousand, recording the attempted treatment of perhaps a larger proportion than usual of the ordinary irregularities met with in an average practice, and illustrating the evolution, within certain limits, of an almost generalised method. Classifying any large series most conveniently by the mechanical exigencies of each case, in certain of them extraction of possibly sound teeth might, of course, be necessary, though these were less numerous than usually imagined. A large class, uncomplicated by crowding, admitted of direct and immediate correction by suitable means. Of the remainder, the majority were cases, of every variety, in which the teeth—not really too large or numerous for the jaw they might symmetrically occupy—were by some chance of their eruption irregularly disposed, interlocked, and crowded. Of these it might be affirmed that rectification necessitated the movement of many teeth or all, and an altered shape or outline of the dental arch. This class presented the greatest difficulty in regulating by the usual way, especially with a rigid plate; but in the most intricate or the simplest of them, the permissive control of the general tendency of movement during regulation reduced their successful treatment to comparative ease and certainty. This mechanical anticipation of favorable conditions might be illustrated by assuming an incisor to be moved in a crowded arch by any means applied by a plate rigidly embracing the bicuspid and canines, when a certain force in a certain time might complete the operation; but were the plate either abolished or its symmetrical halves partly independent and free to move relatively in the plane of the arch, less time and force would suffice; and, furthermore, if its halves tended but slightly to separate by an elastic spring reaction, many cases would require very much less time and force to be exerted on the tooth. The action thus stated was observed for the first time by a singular accident. Soon after the introduction of vulcanite, the author's father was employing a plate of that material to move an incisor by the swelling of wood. Successive increments of force were resisted until not only was it

suddenly in position, but other front teeth were found slightly separated where previously in overlapping contact; the wood (being nearly on the median line), by lateral expansion, having split the plate down the centre. In this instance, as would often be the case, previous "expansion of the arch" by the means usually applied was certainly not indicated, and therefore not resorted to, although just the slight amount of spreading required was prevented by the rigid construction of the plate. A conviction of this led to a particular method of treating various irregularities, which, as anticipating changes common to them—usually expansive—had been called somewhat indefinitely an "expansion treatment;" and the adoption of which had been abundantly justified by experience. The "expansion plate," whether used for direct expansion or not, was of extreme simplicity, while of complex regulating action; comprising a means—easily embodied in any plate—of conveniently permitting or assisting (instead of hindering or preventing) during regulation, the inevitable changes of the arch naturally accompanying it; and supplementing ordinary expedients with an expansive characteristic. Its distinguishing function depended on the principle of permitting a relative motion, or maintaining a particular controllable reaction between two semi-independent parts, usually its symmetrical halves. Difficulties attended the first realisation of this condition; but it was found that a wire spring of certain form, if a constructive part of the plate, would itself meet all requirements.

The general form might be described as a rather thin vulcanite plate, capping and clasping some or all of the bicuspid and molars, and fitting the lingual surfaces of anterior teeth; but divided completely along the median line into two distinct halves, which were connected by a slight steel wire, so disposed that, while guiding and limiting their relative motion, its tension exerted between them might be perfectly determined and varied in direction and magnitude. When necessary in such a plate to establish the spring reaction, a surprisingly small, almost imperceptible *stress*, even so distributed, and against a widespread resistance, if continuously maintained and suitably applied, sufficed to produce any degree of motion desired. The perfection of the model must be insisted upon. The best impressions had been obtained with the preparations of gutta percha or ballata gum, no other material affording with ease the absolute fit essential for a split plate. A delicate and elastic vulcanite plate from a good gutta percha impression would generally spring over the teeth with so absolute a fit, that its removal might even be embarrassing; but until divided its insertion was not usually attempted.

Trials of the metals and their alloys proved the superiority for springs of apparently so undesirable a material as steel. The almost insuperable difficulty of satisfactorily tempering bent soft steel without deformation of shape, was obviated by the use of pianoforte wire, possessing very uniform texture, temper permitting it to be fashioned and used without heating, and a surface hardness and burnish which greatly tended to its preservation. A diameter of between three and four hundredths of an inch (or about 0.035 inch) was most suitable, as of this a convenient length of from one to two inches and a half exerted an appropriate tension in average cases. The extremities being buried rigidly in the vulcanite, the uncovered and active portion of the wire, emerging from selected points in the alveolar region, should be entirely on the lingual side of the plate, nicely fitting, but free to move upon its surface. The wire between its attachments might be in a simple curve, when, for localised action

(as exclusively posterior expansion), it would urge a relative motion or rotation about some point; but that every kind of motion might be established, there must be one or more reversals of curvature, by either a single couple of opposite curves, or any number of alternately contrary ones (preferably *odd*) approximately balanced, and as large and symmetrical as possible. A serviceable form for an upper general expander was a three- or five-curve serpentine figure, like a rounded capital W. The spring being shaped to fit as nearly as possible the palatal surface of an upper model, or the lingual surface of a lower, had its ends for half an inch (without being softened) slightly flattened and roughened, and so bent towards the model as to raise it uniformly from the surface to a distance of about the desired thickness of the plate, and the portion to be inserted in the rubber tinned or coated with common solder. To several points upon its exposed part, short ends, or loops of binding wire, were twisted to better secure it in the plaster investment. When in shape it must be free from tension, and attached in the vulcanisation to the plate, which was made *entire* and afterwards divided. The plate being modelled in wax, the spring was placed on the surface, with its ends buried within, and when removed by the counterpart, protected from the rubber by tin foil before packing. Finished in the usual manner, *entire*, the plate was divided with a fine saw, the edges and corners of the cleft being well rounded and smoothed. This, with care, might be done without imparting tension or twist to the spring, which was important. The plate should be inserted and worn in the mouth without tension for a day or two, to first eliminate causes of irritation not due to its expansive action, and sooner induce toleration of its presence. Any expansive force required might then be established, and its right direction secured, by stretching the two halves with a slight exaggeration into the relative positions towards which it was desired they should tend to move. This, however, might require correction and modification by observing its effects in the mouth. The amount of stress, which was not so conveniently diminished as increased, should be small at first, especially in plates whose expansive function might be simply permissive or auxiliary to other regulating action. It might safely be entrusted to the patient (even quite young) to frequently remove, clean, and replace, after duly cautioning, without fear of disturbing its adjustment. The experience gained of steel wire had led to its almost exclusive adoption for ordinary regulating purposes, as spring levers acting directly on the teeth, for pulling, pushing, or rotating; and, being permanently fixed to the plate, their convenience, adjustability, and many adaptations, were remarkable. Combined with a split plate they were found to replace with advantage, screws, inclined planes, wedges, levers, and ligatures, in many of their local uses, and, moreover, were practicable where nothing else could be applied. In fact, by the gradual simplification of means, and the elimination of uncertain devices, a delicate split plate, with perhaps one or two short lengths of small wire closely fitting its surface, was often now to those who employed it, the representative of the wondrous combinations of nearly all the known "mechanical powers" that once exercised their ingenuity. Where in simple cases a plate was unnecessary, with an inch or two of steel wire and elastic rubber tube, efficient expedients might frequently be improvised.

When direct expansion of the arch was indicated, the thin, spring reaction plate, fitting closely the palate, teeth, and tissues covering the alveoli, and not filling the mouth or impeding any of its func-

tions, would, with the minimum of trouble and attention, effect any desired degree of that spreading and moulding of the mouth which it was well known might, to a surprising extent, be rapidly and almost painlessly produced.

Among the uses of direct expansion, its interesting application to the operative treatment of caries, and to slightly overlapping incisors, might be discussed together. In young mouths where interstitial decay of incisors closely in contact almost defied successful treatment, any operation attempted would, of course, be facilitated by gaining ever so small a space between them. Paradoxical as it might seem, it was actually less painful and troublesome to secure ample spaces between all the front teeth at once, than to wedge two of them apart in the ordinary way, with the advantage of easily maintaining their separation without irritation during any course of treatment. A plate exerting anterior expansion would rapidly—and usually almost painlessly—separate the incisors, and by a suitable adjustment of the bearing surfaces, might readily be caused to distribute spaces equally between all the front teeth. If the incisors were just overlapping, slight expansion, with suitable disposition of the bearing surface afterwards, usually permitted the natural action of the lips to straighten them. Expansion, where posterior teeth wrongly articulated, presented little difficulty when the conditions were symmetrical on both sides; when otherwise, or confined to one side only, a differential or even a unilateral effect might be produced, according to the number and kind of teeth the action of the plate might be distributed or concentrated upon, and the arrangement of its articulating surfaces. Lastly, the obvious application of the divided spring plate to narrow misshaped mouths with high contracted roofs, unfortunately also presented considerable difficulty. These cases admitted of very great improvement (as illustrated by models exhibited) where circumstances were favorable for expansion; as when the bite could be either kept normal or made so, and the jaw was not really so contracted as the dental arch made it appear; for such the split reaction plate was peculiarly adapted and unsurpassable, if treated with caution.

While expansion was most readily performed in young mouths, especially under sixteen, the only limitations of age would seem to be the diminished power of restoring fixity after movement, which must be inferred of advanced age, though in a case of considerable expansion at forty-five, the teeth became perfectly firm afterwards. It was hardly necessary to dwell on the desirability of the greatest possible simplicity of regulating devices, in principle and details; and the self-maintaining adjustability of plates, that they might be as independent as possible of any control by the patient, whose co-operation should be confined to their perfect cleanliness only, and the health and comfort of the mouth. In final justification, the advocates of the method appealed to their records of results, which—of whatever real importance or value—would have been difficult or impossible to otherwise attain; and had ventured at such length to detail their procedure, for confirmation or criticism by others.

This paper was illustrated by more than 500 old regulating plates which had been actually used; about 400 being "expansion plates," upper and lower, symmetrically and unsymmetrically divided, of which nearly 200 were "simple expanders," some 200 embodying other regulating devices with "expansion;" the remainder showing the application of pianoforte wire in ordinary plates for general regulating purposes. There were also specimens, with demonstra-

tions, showing, in different stages, details of their mode of construction. The models exhibited in the Museum of the Congress, at Burlington House, of forty typical cases, showing by three or more casts to each case, the condition before, during, and after treatment, were classified as illustrating—

1. Expansion auxiliary to ordinary regulating, (a) in simple crowding, (b) for rotation and alignment.

2. General expansion, (a) for operative treatment of caries, (b) for mis-articulation, (c) *versus* extraction of misplaced teeth, (d) for prominent incisors, (e) for contracted, narrow, or misshaped arch.

3. Applications of steel wire to every kind of ordinary regulating, (a) alone, without plate or accessories, for alignment or rotation, (b) combined with elastic ligatures, (c) with an ordinary plate for moving, shortening, lengthening, and rotating teeth.

4. Combinations of the above.

“THE CAUSES OF IRREGULARITIES OF POSITION OF TEETH.”

The SECRETARY then read a paper on the above subject by Dr. THOMAS BRIAN GUNNING, of New York, who was himself prevented from attending. The writer advocated the regulation of teeth almost as soon as they appeared, long prior to the time at which the profession in this country are accustomed to interfere with them. The relation of the jaws to the teeth and their alveolar processes needed to be explained, since it was not only imperfectly understood, but even misrepresented, it being asserted that the jaws were developed independently of the teeth and their alveolar processes, and that the teeth might be removed without affecting the jaws. He pointed out that in the natural evolution of teeth, the upper jaw was supported by the lip, the nipple being held against the roof of the mouth by the stronger and more active lower lip, assisted by the less developed jaw; that tended to keep the lower jaw back in its proper position, with the upper jaw projecting. He then went on to describe the familiar cases of backward elongation and the successive addition of the first, second, and third permanent molars to the back of the jaw. He altogether impugned the idea that some portions of the jaw grew independently of the teeth, whilst the only portions directly dependent on the teeth were the alveolar borders. As the lower permanent teeth generally appeared before the upper ones so the expansion of the lower jaw was somewhat earlier than that of the upper. In the time between the completion of the first set and the appearance of the six-year old molars, the lower jaw might grow so that its incisors struck on the edge of the upper front teeth, and in order to rest on the back teeth the muscles in certain cases habitually held the edge of the front teeth forward, or the jaw might be held out of its natural position from the too early loss of the infant incisors, allowing the permanent ones to grow up in such a way as to be uncomfortable. When the infant teeth remained too long, the permanent teeth might be kept out of range, and the jaw habitually held out of of its natural position. This should be corrected. The forward action of the lower jaw might also commence through the tenderness of the front teeth of the other jaw; or if the side teeth were painful the muscles might hold the jaw out of centre or it might grow so. Sometimes surgeons were deceived in cases of this kind; he once had a patient who had been treated for fracture of the jaw through a fall, but in reality there was only this habitual malposition of the teeth. As

to extraction, he was of opinion that even if the teeth as a whole were too large for the jaw they ought to be kept in, to encourage the growth of the jaw so long as that could be promoted by this means, and then, and only then, such of them extracted as could be best spared to make room for the others. In conclusion, Dr. Gunning complained that, although odontological practitioners enjoyed at this time the greatest facilities in their various appliances, whilst their works of reference were so numerous, he failed to find on a careful scrutiny anything which could give him the assurance that they regulated teeth better than men in Germany and other parts of Europe did fifty years ago.

Mr. OAKLEY COLES read a paper entitled

“THE ORIGIN AND TREATMENT OF CERTAIN FORMS OF IRREGULARITIES OF THE TEETH AND JAWS,”

which appears in full in another column.

Dr. JOZSEF ISZLAI (of Buda-Pesth) then read a paper illustrative of Carabelli's “Mordex Prorsus and its relation to Prognathia Ethnologica and Meyer's Crania Progenæa.” The exact determination of objects and their nomenclature was important in every profession claiming to be regarded as a scientific one. For the most part Dentistry had paid due regard to those qualifications, principally during the last thirty or forty years. With regard, however, to the different kinds of closure of front teeth such exactness seemed to fail. Dr. Iszlai then entered into a criticism of the views of Carabelli and other authors on the subject. He produced an instrument invented by him for comparing the size of the maxillæ with the capacity of the brain. A fine collection of skulls was also exhibited.

In the discussion which ensued upon these papers,

Dr. ROSENTHAL, of Liège, stated that he had long employed Mr. Coffin's system with great satisfaction, had been surprised at its simplicity and efficiency, and was gratified at the ease of producing results which he had thought impossible.

Mr. CUNNINGHAM, of Wisbech, confessed to the great assistance he had derived from Mr. Coffin's expansion plates, the contraction and use of which, however, depended so greatly on details, that he attributed his own success largely to the personal instruction and advice of Mr. Coffin. He therefore regretted that the paper omitted many important points, as, for instance, the description of the use of gutta percha, which, though many thought they knew all about it, he found by Mr. Coffin's peculiar method had revolutionised the taking of impressions. He thought that all who really tried this method of expansion—which deserved wider recognition,—would find, as he had found, many unexpected and useful applications of the split plate.

Mr. OAKLEY COLES complimented Dr. Iszlai on the splendid collection of specimens he had exhibited, and as to one in particular, which seemed to confirm all the theories advanced in his (Mr. Coles') paper. He trusted Dr. Iszlai would give them an opportunity of obtaining a plaster cast of the specimen for the museum of the Odontological Society, unless he could see his way to presenting to the museum the specimen itself.

Dr. ISZLAI replied that he required the skull in question for his own collection, but would lend it for a cast to be made of it.

The PRESIDENT (Mr. Edwin Saunders) recited a case which he said was now puzzling him. The patient, a boy, sixteen years of age,

who had just cut the right central incisor immediately in front of the left, so precisely one over the other that they both occupied apparently the same position in relation to a line drawn straight, from the root of each tooth being exactly in the same plane. He had made a plate in order to bring it into its proper position, but the difficulty was that he could not get the patient to use the plate continuously.

Mr. COFFIN then briefly replied to the remarks made on his paper.

EROSION OF THE TEETH.

The next paper read was upon "Erosion of the Teeth" by Mr. Alfred Coleman, F.R.C.S. Starting with the remark that erosion or decay by denudation had to different individuals different meanings, the writer said it was therefore desirable at the outset to define the meaning which he attached to that phrase. Mr. Coleman said that in this country generally those terms were confined to the disease which was first described by John Hunter and by him called decay by denudation. On the Continent, especially, the term "erosion" had been generally used with regard to the honeycombing of teeth. The historical notices contained in the paper were taken from Hunter, Fox, Bell, Harrison, Tomes, Bourd , Fadell, and a few others. Hunter was no doubt the first to describe the disease as decay by denudation. He said: "There is another decay of the teeth much less known, viz. ordinary caries, which has a very peculiar appearance, a wasting of the substance of the teeth very different from what is termed erosion. In all instances he had seen, it had begun on the external surface of the tooth pretty close to the arch of the gum. Its first appearance was a waste of enamel, whereby the bony part was left exposed; hence it might be called a denudating process. The bony substance of the tooth or its wasted surface had the exact appearance of the tooth having been filed and polished." From the statements that had been given by authorities on the subject and from the works chiefly of English writers, it would be admitted that they did not materially differ in their description of the appearance represented. That difference would appear on coming to the essential cause, and there no doubt their opinions were warped by their special views. With regard to caries, with which they more or less associated this disease, none of the writers mentioned, with the exception of Fox and John Tomes, spoke of the termination of the process other than as becoming arrested when the parts affected assumed a brown colour, nor did they allude to the almost invariable coincident formation of secondary dentine. Mr. Coleman believed it to be extremely rare for the pulp to be so exposed; when it was it would be generally found that it resulted from true caries having supervened, and then the tooth having undergone the denudation process. With regard to the period of life at which this disease was mostly found, he believed it was more common in that of middle age than even that of youth or old age. With reference to sex, it was his opinion that it was more common in the female than the male sex, but of course that might appear to be the case from the fact that the profession certainly saw more female than male patients. The impressions he proceeded to give were those received purely from his own observations, aided by the use of the microscope. Without for one moment undervaluing this means of extending and confirming one's knowledge of both physiology and pathology, it

must be remembered that the appearances presented by highly-magnified sections were so deceiving that even the honest inquirer going to them with preconceived notions was very likely to make out that which his heart longed for. Mr. Coleman then exhibited a number of sections illustrating various processes in which caries had supervened, showing the difference between those forms and the distinct process of decay by denudation. The conclusions at which he had arrived, from what he must confess to be other than a deep investigation of the subject, were, first, that the main element in the process was friction, and that the condition which would permit the loss of substance thereby was favoured by a change or degeneracy in the tooth itself. Previous to commencing his investigations, his impressions were that this affection arose from the direct action of some solvent furnished by the labial glands or those of other parts which were immediately adjacent to the wasted spots. The application of litmus to both these spots and the opposing grounds or surfaces, however, had never in a large number of cases afforded any greater evidence of acidity or alkalinity than was furnished in normal saliva under various conditions, nor was it reasonable to suppose that a substance composed of such material as a mixture of gelatinous matter with lime salts should, when attacked by a solvent, unless accompanied by friction, present such a hard surface. He could not avoid the conclusion that, in the majority of these denudation cases, some degenerative change had taken place in the structure, and especially in that of the dentine, which had the effect of rendering it less capable of resisting friction than in the normal state. Mr. Coleman recited a case of a clergyman, to whom he had to supply the six front teeth, and also the bicuspid of the upper jaw. The teeth whose places were supplied were all so perfectly level with the gum that there was no necessity for the employment of a file or any other appliance for reducing their surfaces; the bite was certainly an edge to edge one, but the patient could not have been past forty years of age, and there was nothing in his history to account for this wearing away of the teeth. With regard to the agency by which the friction was in all cases furnished, Mr. Coleman met with some difficulty in accounting for it, but he thought that the fact ought to be recognised that all the movable and soft structures of the mouth and the tongue especially were capable of reducing in dimensions the dental structures. It was well known how soon a sharp edge of enamel was worn down by the movement of the tongue. The latter suffered from the contest, but finally prevailed in consequence of its power of repair. In a model produced it was shown how a tooth might suffer from the constant rubbing of the thumb. In this model the owner of the teeth, who was a child, eight years old, had all her lateral incisors wanting. A condition not much dwelt upon by the writers quoted, was the great sensitiveness presented at the denuded spots, especially at the early stage; when touched by the finger or the hairs in a tooth-brush, they gave a sharp and peculiar thrill with a sensation like cold along the region of the spine. That proved that the tooth under such conditions could not be devoid of vitality. He would mention one point in regard to treatment, and that was the constant application of ammonia or one of its compounds. He usually employed sal volatile as being of a suitable strength to be employed on a piece of cotton or a brush three or four times a day. He must differ from those who, because they happened to find the existence of the affection so clearly defined by Hunter in places that were apparently incapable

of having been rubbed, therefore denied that there was friction. He had never seen a place in which friction was not possible either by the tooth-brush, tooth-pick, the tongue, the lips, or the saliva. As to the last named, his friend, Mr. Todd, reminded him of the familiar instance of a stone continuously worn by dropping of water and of the pebble rounded in the brook. He also remembered that the pebble ornaments, such as pen-knife handles, &c., introduced so cheaply in Germany, were polished under water. He had referred to the tusk of the female Indian elephant in the Museum of the Royal College of Surgeons, and the conditions presented by the tusk resembled but very slightly, if they did at all, the conditions of decay by denudation as occurring in man; nor, on the other hand, did they resemble ordinary dental caries. With regard, however, to the tooth of a certain class of seal and sea-lion, or fur seal, the cause was different. He had not had any opportunity of examining them for himself, but Dr. Murie said of them, "To my mind neither the supposition of inherent disease, nor the theory of friction, for a certainty accounts for the uncommon manner in which these teeth have lost substance." Dr. Murie admitted that it was possible for the dental apparatus to be worn away or denuded of the softer dentine by the rubbing of the teeth against each other; but he believed it to be impossible that the friction of the mouth would be sufficient to reduce the substance of the teeth; he had seen abraded surfaces which were not such as would meet the mouth, and no doubt much of the loss of these teeth was due to antagonistic friction. Seals swallowed mouthfuls of pebbles, and granules of sand might be taken up at the same time and effect an erosion, but the natural polish and the mode in which particularly the great canines were produced, opposed rather than supported the theory. He was at a loss to explain this condition in the seal by any reference to the dental structure in man in a civilised condition. In man we should always expect to find organs so imperfectly employed as were those of the seal rather in a state of degeneracy. Surely, also, the fact of the human voice ought to affect the matter. For instance, in speaking for a short time with your attention directed to the repeated and continuing movement of the lips and tongue, it would be understood what that friction under water must mean. It was an interesting fact that, of all animals, the sounds which could be made by the seal most resembled the human voice; it had been sometimes called "the talking fish." Its tongue was long and free, and although it appeared to swallow its food with but little mastication the tongue might be well employed in removing the scales of fish which, no doubt, at times adhered to the teeth with considerable pertinacity, and it was such a tongue as might well sweep all round its cuspidati and molars, which had a considerable distance between them.

Looking round on the assembly composed of so many distinguished influences, a temptation arose which it was difficult to resist. He could conceive of no greater opportunities than were those afforded by this International Congress for a general acquiescence in and settlement of a universal nomenclature of the diseases which were common to the countries represented, and if he might be so bold as to make a suggestion it would be to the effect that this International Assembly of Dental Physicians and Surgeons should decide upon a designation which in their opinion might best describe the affection first noticed by Hunter, and by him named decay by denudation. A very admirable classification had been suggested by Dr. Murie. In speaking of the conditions by which portions of human

teeth might be lost, he thus classified them. He said: "Human teeth may suffer from diminution in volume by four separate processes, which are as follows:—(a) by true absorption, equivalent to the normal healthy process, which is witnessed in the passage from the deciduous to the permanent dentition; (b) by erosion or interstitial changes of a chemical vital character, but differing from true absorption in being the product of abnormal changes; (c) by denudation or abrasion, simply the slow mechanical rubbing away either from contact with the opposed tooth or friction with a foreign substance; and (d) by force or piecemeal chipping away of portions varying in size according to circumstances."

Dr. DENTZ, of Utrecht, wished to make this explanation:—The personal opinions of M. Magitôt, which he expressed in the Section on Diseases of Children, did not at all represent the opinions of the profession on the Continent. As a rule, they made use of English works and of the German translations of English works, and thanks to those English, and he might say American works, they wholly and totally accepted the decisions which their able English and American colleagues had arrived at. He wished on behalf of the profession on the Continent to say that M. Magitôt's views did not at all express theirs.

Mr. C. TOMES said he would like to ask Mr. Coleman this question—whether he would give in his adhesion to the idea expressed by several Continental writers that erosion was simply identical in caries in which the softened tissue was worn away as fast as it softened. He would also ask him whether his observations had given him any clue to that very curious form of denudation in which the front teeth became shortened, and in which, instead of the neck of the teeth being attached down against the gum, one found that the cutting edge of the incisors became blunted and shortened, and wasted so that they ceased to reach their opponents. There was great difficulty in understanding how that part of the tooth should be selected for such an affection. One might understand it better on any other point of the tooth than that. The thanks of the Section were due to Mr. Coleman for the ingenuity with which he had accounted for friction occurring in places in the mouth where at first sight one might think that friction could not play any part. It had always been a difficulty in this matter of erosion, and particularly in the mouth of such a creature as the seal, to see how the tooth could be exposed to friction, but the suggestion that the tongue, aided perhaps by silicious particles taken into the mouth, swept around the teeth and caused the affection was a very valuable one. Friction did not seem to fully account for every one of these cases of erosion. It would be noticed, however, that in a right-handed person the amount of waste of the teeth was very much greater on the side most efficiently reached by the tooth-brush. Therefore, although friction did not seem to account for everything, yet one could hardly doubt that it had something to do with the affection, because one found in right- and left-handed people a reversal of the sides of the mouth in which the greatest loss of substance took place.

Mr. GADDES recounted a case of seal teeth in the lower and upper jaw of a highly educated man, whom he had under treatment. The patient was a right-handed man, and the erosion was most marked not on the left side, but on the right side, both in the lower and upper jaw, extending back in the upper jaw to the first molar, which was very deeply grooved near to the gum. Being a right-handed man, he (Mr. Gaddes) had expected to find it more marked on the left side,

which would be the side one would naturally suppose that the greatest amount of friction would be expended upon, but the contrary was the case; furthermore, three or four cavities that he had as yet filled were extremely sensitive, and it was only with the greatest endurance that the patient allowed him to complete what he had done.

Mr. MAGOR said he had never yet met with labial surfaces in a polished state where people had not been in the habit of cleaning their teeth to some extent. He had constantly had cases where they were denuded, but not in a polished state. In some cases the teeth were worn away very much by persons, such as fishermen and sailors, who were in the habit of chewing tobacco. In one particular case a fisherman in Ireland had all his teeth, thirty-two in number, worn down almost level with the gums and the pulp cavities filled up with secondary dentine. He met with a very peculiar case the other day, for which he utterly failed to account, and which was similar to that mentioned by Mr. Charles Tomes, where the two central incisors were worn away and polished so that they ceased to meet the lower teeth. That was a very singular case, and he would like to hear some explanation of it.

The PRESIDENT mentioned a very interesting case of this kind that came under his own experience. There was sent to him from South Wales a microscopic section of a tooth, and he was asked to give his opinion as to the cause of its loss. The section was made in a singular way, right through the lower incisor. The usual polished notch existed in the front corresponding to the inside; secondary dentine, both before and behind, was deposited right round the internal canal so as to strangle the pulp, which was large above and below and became highly vascular. The result was always extreme pain, ending in an abscess, and the tooth was extracted. In reply, he gave it as his opinion that the lady to whom it belonged had been in the habit of using a tooth-brush with a considerable amount of silicious tooth-powder, or with a tooth-powder with some frictional power in it. The answer that came back to him was they were excessively satisfied—that it had always been a standing joke in the family that this lady, when she was not to be found anywhere, was sure to be cleaning her teeth. He always found that there was a greater liability to loss from erosion on the left-hand side of a right-handed person, and *vice versa*. The case mentioned by Mr. Gaddes was one of those exceptions which proved the rule; when a man was conscious that he was right handed or left handed he might, perhaps, take it into his head in one particular matter to overcome his weakness. As to friction, they knew that those Red Indians in North America who lived upon the coast, where they dried their fish in sand, did wear their teeth down. Then, again, they continually found persons who were in the habit of smoking a clay pipe wore their teeth down exactly at the spot where the pipe was usually held.

Dr. TAFT confessed to some disappointment in hearing this discussion. This was a subject which had appeared most obscure to him. There were several varieties of abrasion or wearing away of the surface of teeth, and one he could mention was not solved by anything that had yet been suggested. This process occurred sometimes on the smooth surface of teeth, and cut it down just as if a plane or a chisel had been employed to make a perfectly smooth surface. Or it burrowed into and formed little cavities upon the surfaces of molar teeth—sometimes cavities of considerable size and of such

depth that neither the tongue nor the tooth-brush could touch the bottom of them, and nothing except the saliva and, perhaps, the food that would be carried into them, could come in contact with them. The same thing occurred with the bicuspid teeth. Oftentimes they were cupped out at the end to such a depth that neither the tongue nor the lips could touch the inner surface. In some cases, when these pits in the molars were filled there would be a continuance of the process round the border of the filling, and a little groove would be made, perhaps only at a small point, but sometimes involving the half of the filling and sometimes running all the way round the margin of it. Some of these manifestations of the affection would preclude the possibility of the work being caused by friction, by the use of the brush, by the tongue, or by the fluids of the mouth. This process seemed to progress more rapidly in the dentine than in the enamel. Ordinarily, one could determine when the wearing away of the tooth was produced by abrasion. Smoking a clay pipe, or using an improper dentifrice with the tooth-brush, would account for the wearing away, the most prominent parts having mostly the greatest loss of substance. But that was a totally different thing from the process he described. When the cavities were filled, it was found there was no wasting away of the bottom or beneath the filling, no wasting away at the wholly protected parts, and if this work were accomplished by any agency within the tooth itself, how was it that it did not occur when the part was wholly protected from outside influence? He came to the conclusion that this process was occasioned by the operation of outside influences. Whence, then, did it come? Did it come from the vitiated product of the mucous membrane? The margin of the gum oftentimes became inflamed and irritated, and threw out a vitiated exudate or product, and this no doubt in many instances acted on the dentine. He would be glad if, before the conclusion of the Congress, he was able to have these difficulties cleared up.

Mr. COLEMAN, in reply, said he was pleased to hear from Dr. Dentz that, as a rule, Continental practitioners were content and willing to adopt the term that Hunter gave to this disease, although Bourdè, Fadell, and M. Magitôt, entertained a somewhat different opinion. Referring to Mr. Tomes's criticisms, he believed there were certain changes which were produced in the tooth itself, which rendered that tooth more capable of being worn away at certain parts than others. When they found a tooth exposed only to the same conditions as other teeth which had not the affection, they could only conclude that the affection was due to some change at those spots in particular. He believed that that change produced a softening of the tooth, which rendered it abnormally liable to the results of friction. With regard to Dr. Taft's remarks, he did not remember to have seen a case in which this disease occurred below the margin of the gum, and with respect to sensitiveness, that certainly was in the exposed dentinal tissue rather than in the gum itself. It would be very difficult to treat these exposed spots without breaking the gum; both must be treated at the same time. His impression was that the escharotics he had mentioned acted upon the sensitive parts, and arrested the further progress of the disease, rather than by any condition they produced in the gums. Perhaps at some future Congress he might be enabled to further state his views and experience on this subject.

The Section then adjourned.

EROSION OF THE TEETH REGARDED AS AN EVIDENCE OF
INFANTILE CONVULSIONS.

At the close of the discussion on erosion of teeth held in the Sections of Diseases of Children on August 5th, Dr. Magitôt made the following reply :

Mr. Moon, who opened the discussion on my communication, attributes the various kinds of erosion to the action of mercury. That is a view which I cannot comprehend. The action of mercury is exerted on the gum and not on the teeth, and if inflammation of the gum is able in certain cases to produce a certain alteration in the teeth, such alteration is altogether different from, and has nothing in common with erosion. It appears to me, then, that Mr. Moon has confounded erosion properly so called, which is congenital and teratological, with certain pathological alterations of the crown of the teeth which appear at the very level of the inflamed gum.

My friend, Mr. Charles Tomes, I see still maintains his old opinion that erosion may be caused by various affections of infancy. I have already dwelt so long on this point that I need scarcely return to it. The conditions essential to the production of an erosion is an abrupt invasion followed by equally abrupt cessation on the part of the affection which causes it. It is this character which causes the sudden interruption between the healthy part of the gum and the notch or furrow. The intercurrent malady must in its very nature be at once sufficiently severe to produce an interference or suppression in the formation of tissue, and sufficiently general to cause a disturbance of nutrition. Now, these conditions are all met with in the highest degree in convulsions, the mechanism of which, although still undetermined, is undoubtedly connected with a certain severe condition of the nervous system, of which the convulsive crises in their abruptness and their evanescence appear to be the external manifestation. This objection applies equally to Dr. Dally, whose opinion is similar to Mr. Tomes'. As to Mr. Coleman, who is a partisan of Mr. Hutchinson's views, my answer will be included in that with which I confront the leader of the doctrine, Mr. Hutchinson himself. The learned surgeon to the London Hospital does not recognise in the specimens of lesions which I have shown, those alterations which are, according to him, characteristic of hereditary syphilis, those, namely, which accompany that essentially syphilitic affection, interstitial keratitis. According to Mr. Hutchinson, the only form of erosion characteristic of syphilis is the notch of the cutting edge. It appears to me, however, impossible to deny that the various forms of erosion are identical in nature, and that if hereditary syphilis can produce certain forms, it can surely also produce certain others, the only difference between them referring to the date of the cause and the corresponding level of the erosion. Again, here I have a considerable number of observations of erosion in all its forms, that of Mr. Hutchinson as well as others, showing their strict connection with convulsions. If Mr. Hutchinson persists in regarding a special disposition to notches as syphilitic, I will ask of him two things; the first is, to prove that the patients who present notches have not suffered during their infancy and at the date corresponding to the erosion from any convulsive attack; the second is to show that the same patients are undoubtedly suffering from hereditary syphilis. In the case of most of his patients, Mr. Hutchinson had not and could not have any precise information on the question of con-

vulsions. They were out-patients, without family, without parents capable of giving information as to their early infancy. In many cases which Mr. Hutchinson has had the goodness to show me, I have certainly verified the co-existence of dental change with interstitial keratitis, but it seems to me that such co-existence is very far from implying a common etiology. Lastly, there is another question to decide, that is, as to the syphilitic nature of parenchymatous keratitis itself. Some authors regard it rather as a symptom of scrofula, and the identity of the two diatheses has not perhaps been sufficiently proved.

These various observations naturally apply also to M. Parrot, who, however, requires a separate answer on several particular points. M. Parrot asks me how I explain the fact that the temporary teeth are so rarely attacked, and that certain of the permanent teeth (the second bicuspid and the second and third molars) invariably escape. The immunity of the temporary teeth is easily explained. They do not complete their evolution before birth, and the table which I have shown gives, in the case of each tooth, the height of its cap of dentine at that date. If the morbid interference occur in the first week of life, the erosion will occupy a point on the crown of the temporary teeth far removed from the cutting edge. This is the reason why the milk teeth never present notched erosions, but rather furrows invariably high up on the teeth. It is certain, however, that some temporary teeth show very clear traces of changes analogous to, if not identical with, erosion; and it is in connection with these cases that M. Blache asks whether I believe in an intra-uterine morbid cause. Assuredly I do; every lesion of the temporary teeth implies a cause absolutely maternal, but what is this cause? Is it, too, I am asked, convulsions? I would not venture to answer yes, although I once believed that I had lighted on a case of the kind in a mother who died of a premature confinement at eight months, having borne a child with erosion of its temporary canines. It is easy, however, to understand that during this fetal period the disturbing influence acts much more easily on the intra-follicular evolution of a tooth than later on, while the reaction of the mother on her progeny is a very admissible theory. I have, moreover, said, in the course of my communication, that many of the cases of erosion of the temporary teeth exhibited by M. Parrot seem to me to be due to post-mortem changes.

Again, if certain permanent teeth are never attacked by erosion it is because, as I have already shown, the conditions of their development do not lend themselves to it. In a case in which a first bicuspid presented a furrowed erosion, I found a history of convulsions at three years and a half, a date corresponding to the state of development of the crown. Lastly, the two last molars appear to owe their immunity to the fact that, according to the data that I have fixed, they cannot come under the influence of convulsions, an affection which scarcely ever occurs later than the fourth or fifth year.

M. Parrot rightly insists on the necessity of systematically arranging the facts in any investigation which deals with the causes of erosion of the teeth. That is exactly the point to which all my efforts have been directed; only while M. Parrot arranges them from the point of view of syphilis, I arrange them from the point of view of convulsions, and it is on this principle that I confess my inability to understand how the slow and continuous action of hereditary syphilis can produce with such accuracy the furrows and notches which I have described.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE EXPURGATION OF THE DENTISTS' REGISTER.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Some time ago I promised to afford you at all times whatever information I received on Dental matters, so that your desire to “catechise” at least one member of the Representative Board of the British Dental Association might have been gratified before it had been announced in your Journal. Although you have been rather severe on the Representative Board, it may not be too late yet to ask information on the main point of divergence, and whether the information be satisfactory or no, I am sure you will accept it as it is given and acknowledge that your desire has been promptly met.

When the Dentists Register was compiled a very large number of chemists and druggists, some of whom were not previously known to practise Dentistry, claimed a place on its pages. We need not now enter into their motives. I believe on the whole that they were right and proper, and that a large number of them are men who would not disgrace any register; but in addition to these were registered the names of some 500 persons, chiefly drawn from a class of youths who by no form of perverted ingenuity could find a place on the ‘Chemists and Druggists Register,’ and with these were mixed up a number of tradesmen and artisans of various kinds who cannot by any stretch of charity, at the expense of the public, claim a place on the register. The legitimate Dental practitioner has no fear of competition with these men; but the duties of the Representative Board do not lie in one direction only. The provisions of the Dentists’ Act extend to the public as well as to the profession, and it is one of the duties of the Representative Board to reduce the perpetration of an unavoidable evil to the minimum. It is one thing to receive on the Register a number of respectable men who serve the public faithfully in their several capacities, and unavoidably with them a large number who take advantage of the register to deceive the public; but it is quite another thing to foster a generation of youths who, beginning life with imposture, are likely to

carry it on through several decades, and a number of men whose only aim is to perpetuate a state of things which is a public scandal.

As to the mere expediency of seeking to correct an admitted wrong by the erasure of the names of such persons from the register some people may entertain reasonable doubts. But that condoning of the wrong by silence or otherwise is a duty we owe to the public I cannot believe. Neither can I believe, unless I see a statement to the contrary, that there are two opinions on that point between you and

Your obedient servant,

JAMES SMITH TURNER.

[WE have commented on Mr. Turner's letter in another column, but we would here take the opportunity of expressing our gratitude for his prompt courtesy in assuming the rôle of catechumen. The whole discussion, so far as we are concerned, turns on expediency. At the same time we do not see any *obligation* on the part of the British Dental Association to purify the Register. The Dentists Act was passed mainly in the interests of the public, a special body, the General Medical Council, being entrusted with its due execution. Only they can condone who are sinned against, and much as we revere the British Dental Association we cannot see that any one has as yet been guilty towards it of *lèse-majesté*.—ED].

A CONTRAST.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In your issue for the 1st of this month two notices appear. One from the Dental Hospital of London, the other from the National Dental Hospital, both soliciting applications for the post of Dental surgeon. With the notice of the Dental Hospital it is impossible to find fault; such is not the case, however, with that of the National Dental Hospital. I think that the executive of the latter institution might take a lesson from the notice of the former. If nothing but the L.D.S. Eng. will satisfy them, let them in private single out such applications from the number which may be sent in, and not publicly slight the licentiates of the other colleges.

I am, &c.,

E. J. A., L.D.S. Edin.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM SEPTEMBER 1ST TO SEPTEMBER 30TH, 1881.

Extractions	{ Children under 14	525
	{ Adults	861
	{ Under Nitrous Oxide	278
Gold Stoppings		49
White Foil ditto		1
Plastic ditto		262
Irregularities of the Teeth		25
Miscellaneous Cases		117
Advice Cases		150
Total.....		2268

HERBERT G. BLACKMORE,

House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM SEPTEMBER 1ST TO SEPTEMBER 30TH, 1881.

Number of Patients attended	1333
Extractions { Children under 14.....	438
{ Adults.....	646
{ Under Nitrous Oxide	134
Gold Stoppings	28
Sheets of Gold used, independent of Pellets.....	21
Other Stoppings	237
Advice and Scaling	143
Irregularities of the Teeth	27
Miscellaneous.....	181
Total operations	1834

JOHN S. AMOORE,

House Surgeon.

QUARTERLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF EXETER,

FROM JULY 1ST TO SEPTEMBER 30TH, 1881.

Extractions	{ Children under 14.....	284
	{ Adults	695
	{ Under Nitrous Oxide and Ether.....	40
Stoppings	{ With Gold.....	19
	{ „ White Foil	19
	{ „ Plastic Material	187
Miscellaneous (Irregularities of the Teeth, Scaling, &c.).....		196
Total.....		1440

HENRY B. MASON,

Hon. Sec.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

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ANSWERS TO CORRESPONDENTS.

- "Z."—The remainder of the Congress Reports will appear in our next issue.
 "STUDENT."—Consult our Students' Supplement, recently published.
 "ENQUIRER."—Apply to the Registrar of the General Medical Council.
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Communications have been received from Messrs. Wm. Fothergill (Darlington), Oakley Coles (London), W. Hodgskin Hope (Wellingborough), Secretary of Charing Cross Hospital, James Smith Turner (London), Henry B. Mason (Exeter), Dr. Stringfield (Lowestoft), James Hardie (Alloa), John S. Amore (London), E. J. A., House-Surgeon of London Dental Hospital.

BOOKS AND PAPERS RECEIVED.

'Circulaire de l'École Dentaire libre de Paris.' 'Lancet.' 'British Medical Journal.' 'Medical Times and Gazette.' 'Pharmaceutical Journal.' 'Le Progres Dentaire.' 'Missouri Dental Journal.' 'Correspondenzblatt für Zahnärzte.' 'Dental Record.' 'Durham County Advertiser.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE.**

British Journal of Dental Science.

No. 331. LONDON, NOVEMBER 1, 1881. Vol. XXIV.

THE MEDICAL HOLIDAY.

AN ADDRESS DELIVERED BEFORE THE EAST LONDON AND SOUTH ESSEX DISTRICT OF THE BRITISH MEDICAL ASSOCIATION IN THE TOWN HALL, MARE STREET, HACKNEY, ON THURSDAY EVENING, OCTOBER 20TH, 1881.

By EDWIN SAUNDERS, F.R.C.S., President of the
Metropolitan Counties Branch.

GENTLEMEN,—When I received your kind invitation to preside on the occasion of the first meeting of the session 1881-2 of this section of the British Medical Association, I accepted the honour without hesitation. For I felt that whatever there might be of constitutional shrinking from public appearances, or misgivings as to the possession of certain qualities which go to the making of a good chairman, would be at once overborne by three principal considerations: first, the courteous terms in which the invitation was conveyed by your accomplished Honorary Secretary, which would have made any other than a frank and cordial acceptance churlish and ungracious; then, an anxiety to do as my predecessors had done, and not to omit any usage or observance pertaining to the office I have the honour to hold; and, last, the desire to make or improve acquaintance with the members of the Association belonging to this district.

The circling year brings round in due succession the somewhat arbitrary divisions of time called seasons, each with its appropriate character and peculiar interest for some section of the community. To the statesman, the legislator, and the politician, the spring—season of hope—with all the possibilities of the opening session of Parliament, with the

eventualities of home and foreign politics, or of party strife, would naturally seem invested with the highest interest. To the members of the great world, which constitutes society in its highest sense, and whose presence gives life and colour and movement to the season, summer, with its lengthening days and warmth and light, would prove most attractive. To the civil servant of the Crown, to the administrator of laws, to the advocate whose impassioned appeals, exhausting in themselves, are rendered doubly so by being made in the foetid atmosphere of the crowded justice-hall, no season can be so ardently welcomed as the autumn. For to these the vacation means rest and light, and air and external conditions conducive to the maintenance or recovery of health. Nor will the busy and helpful medical practitioner be insensible or indifferent to the charms of this season of travel and recreation, respecting whom it may be affirmed that as none has a better claim to a cessation from the drudgery of an arduous profession, so none is found to turn it to better account. With the single exception of the artist, who, seizing the occasion when nature is at her loveliest and best, repairs to spots where healthful breezes combined with picturesque scenery, unite to reinforce his physique, as well as to furnish inspiration for his artistic sense, there is none, probably, who obtains so wide and so large a return from the autumn holiday. The artist, indeed, brings back a portfolio laden with new and rich material for future work in the studio, and his artistic eye is cleared and strengthened by his closer and freer communion with nature. And this may, at first sight, seem too much like continuing the working season into the holiday, and to be wanting in the element of rest or variety of interest, which is usually and rightly regarded as a prime factor in relaxation and the recuperation of energy. But it must not be forgotten that the life of the artist is passed in an ideal world, in a region of poetry and imagination into which the saddening impressions of sordid cares and mundane miseries but rarely intrude, and exercise but a fugitive and feeble influence; for even if the genius of the artist should lie in the direction of the tragic aspects of human nature, the transient and fictive

emotions thus called into play differ widely in their effect on the mental and moral condition of the individual from that intimate and perennial association with the petty and actual woes of life which falls to the lot of the medical practitioner. The daily routine of his life is passed in a more or less successful conflict with physical frailty, suffering, and mortality, in the conduct of which he does not necessarily lose heart because it is brought home to him from time to time, in successive defeats, that the final victory may not be his—that in the end he must be beaten by the last enemy. This familiarity with suffering, this daily conflict with disease, this wide knowledge of all the ills that flesh is heir to, tends to infuse into the life of the practitioner of medicine an earnestness of purpose and a serious thoughtfulness which give a tone and character of their own even to his hours of leisure and recreation; so that when the time arrives when the bow should be unstrung, he is not found even in the halls of a comparatively mild and innocent dissipation, or in the resorts of the votaries of pleasure pure and simple, which would ill accord with his intellectual tastes and habits. His broad and many-sided culture, the training which fitted him for his profession, disposes him to quite other scenes and modes of thought than would be satisfactory to the trifler and the man of fashion. If his tastes should lie in the direction of foreign travel, he will be sought in vain in the *salle de jeu*, in the card room, or at the billiard table, but will probably be found botanising among the Alps, or inquiring into the mode of formation or rate of progression of glaciers, or amongst the primeval rocks with his geological hammer, seeking light on the fauna and flora of a prehistoric age. Or if he be archæologically inclined, he may be heard of in some old-world German or Norman city, delving in its archives for legends and traditions of a glorious but half-forgotten past; or revelling in architectural remains, secular or ecclesiastical, or among such art relics as may have survived the fortunes of war, changes of dynasty, or the tooth of time. Dear to his soul are the quaint devices, the conventional wood carvings, the fantastic gables, the grotesque gurgoyles, and

"The storied windows richly dight,
Casting a dim religious light,"

bequeathed to us by an age in which there was more leisure, and more room for the free play of artistic fancy. Thus emancipated from the perfunctory discharge of routine duties, his mind is refreshed by new scenes and varied interests to which his well-informed and active intellect with his cultivated taste adds a new stimulus and zest. He at the same time sees more, and what he sees is more suggestive, than would be possible for one who is a stranger to such training and mental discipline. In like manner, and for similar reasons, when he visits those vast storehouses of art, the foreign galleries of painting and sculpture, the accumulation of many generations, and culled from all countries, he bears with him an intelligent appreciation; and without failing to detect the underlying thought to be traced in every true work of art, does not prostrate himself in blind adoration of what may, without irreverence, be regarded as the puerilities of genius. His keen appreciation of art will not, however, render him insensible to the charms of natural scenery, for no one will be found to breast the mountain side with a blither step or a sharper zest, none more capable of feeling the full influence of nature in her grand and stern, no less than in her softer, aspects in the ever varying landscape in sunshine and storm, on moor and lake; or whose spirit drinks in fuller measure the mystic glories of the setting sun. This added sense of the enjoyment of natural beauty, this larger and deeper communing with nature, would seem to be a natural result of his mental discipline and training, and that comprehensive range of knowledge and scientific acquirement which are rightly considered necessary for the medical career, and which marks it off from the narrow and unilateral character which is too frequently found attached to technical education. Thus, I think it may be asserted without fear of contradiction, that as none has a stronger claim for the autumn holiday founded on the arduous nature of his daily duties, than the practitioner of medicine, so none is in a better position from his breadth of sympathy and variety of knowledge to turn it to the best

possible account. Nor should it be forgotten that his physiological knowledge and familiarity with the principles and laws of sanitary science will stand him in good stead, and enable him to draw up a programme which shall be healthful and practicable, having reference to his antecedent and normal habits of life. Thus he will not commit the too common mistake of suddenly quitting a quiet, uneventful, and sedentary mode of life, for feats of walking or mountain climbing, that would somewhat severely tax the energies of a seasoned member of the Alpine Club. Nor will he suffer himself to be beguiled into lingering, after sunset, in ill-drained, though picturesque valleys, or in the fever-laden reaches of the Roman Campagna. He is, in fact, careful to adapt himself to his altered external conditions, which may be beneficial or harmful in proportion to such individual adaptation, by a sedulous observance of all that is included under the word regimen in its most comprehensive sense.

Thus he will be especially careful as to suitable diet, appropriate clothing, and exercise graduated in accordance with altered circumstances. He will see that the stomach and alimentary canal, with all co-ordinate forces and functions, are brought into a favorable condition for adapting themselves to differences in the quality and preparation of food, and to what is of even greater importance, changes in the time of taking the principal meal. He will also provide himself with an ample supply of overcoats to protect him from sudden falls in temperature, at sunset, in the shade of great mountains, or in the near neighbourhood of glaciers. He will also judiciously regulate his feats of pedestrianism in accordance with his physique, age, state of health at the time, and previous habits of life; being careful not to overtask his walking power at the outset of his expedition. He will thus make the autumn holiday fruitful of moral and physical good, and will have avoided those errors due to thoughtless self-abandonment, to the glamour of novel and impressive aspects of nature which, so far as they are infractions of natural laws, inevitably entail disastrous consequences. Of winter, that other season—season of negations—in which there is, in these latitudes at

least, comparatively no sunshine, no flower-enamelled sward, no genial warmth in the breeze, no singing of birds, no leafy crown to the trees, when Nature, no more a tender and loving mother, assumes a stern and rugged aspect, and tests the endurance of her hapless children almost beyond their power of resistance, there need be little said. Man's ingenuity is then severely taxed to mitigate the rigours of outward existence, and to make life worth living to other than the Nimrods and athletes of our race.

But if the practitioner of medicine is thus enabled to experience an enhanced power of enjoyment of his holiday, the period of his return is also a time of absorbing interest. In common with the rest of the community, the autumn is to him as the sabbath of the year, in which he rests for a time from his labour, happy if on looking back his conscience can pronounce it very good. And it is no small matter for congratulation and encouragement that this yearly sabbath of rest is observed by an ever increasing number of the members of our exacting and anxious profession. That this should be so, is a sufficient answer to the charge of mammon-worship, which is too frequently and too lightly brought against the present times, surely with little justice, against a profession which spares not itself in its humane mission, and whose ruling thought is to do good, with or without fee or reward. Of those minor divisions of time governed by the relative movements of our earth and her satellite, the moon-periods or months, none is so full of interest to our profession as this tenth month, wrongly named October. It is somewhat remarkable, not to say unfortunate, that in bestowing names on these lunar periods there has been an entire absence of rule or principle, some of the names being derived from the heathen mythology, as January, March, and June, from Janus, Mars, and Juno, some from Roman Emperors, as July and August, from Julius and Augustus Cæsar, one from a Christian source, the month of May, from the Virgin Mary, two from supposed climatic peculiarities, February, or fever month, and April, and four bearing Latin numerals, which are simply misleading—inasmuch as the month of September is really the ninth and

not the seventh, and October, mendaciously so called, is in like manner the tenth, and not the eighth month of the year. Out of this confused, heterogeneous, and inappropriate list of names, only two have any pretensions to be regarded as suitable and descriptive—January, indicative of the gate or entrance of the year, and April as typical of the opening of buds and flowers, and as giving promise of the coming summer. October, however, is the month specially consecrated to Science and the Arts, and indeed so closely identified is it with medical interests, that in the unlikely event of a revision of the confused and heterogeneous nomenclature now in use, a strong claim might be preferred for giving it a name indicative of this connection. To students no less than to advanced and established practitioners, is it especially dear, for while to the former it means that momentous crisis in a man's life, the choice of a profession, and the introduction to his *alma mater*, to the latter it is the resumption of such agreeable re-unions as that at which we are now privileged to assist, and of many larger and grander gatherings of the members of the learned and scientific world.

ON EROSION OF THE TEETH REGARDED AS AN EVIDENCE OF INFANTILE CONVULSIONS.*

By Dr. MAGITÔT, of Paris.

(Concluded from page 966.)

WE now come to the third and last part of the argument, viz. the demonstration that erosion of the teeth, when it occurs in the form of notches, of furrows, and *en nappe*, is to be invariably regarded as an evidence of past infantile convulsions. And first let me show you a table in which I have arranged forty cases of erosion of the

* Translation of a communication contributed to the Section on Childrens' Diseases of the International Medical Congress.

teeth, strictly and exclusively in their relation to convulsions. This table shows:

1. The kind of dental lesion, its position, and the level at which the teeth were attacked, whether belonging to the primary or the second dentition.

2. The date of the convulsive attacks, with their duration and intensity.

3. Particulars of the family history of the patient, and of the intercurrent maladies from which he had suffered.

I would have you study these forty observations one by one, so striking for their clearness and precision. I could have multiplied them indefinitely, but I think they ought to be enough to prove mathematically the pathological equation that I formulated just now.

TABLE II.—*Analytical summary of forty cases of erosion due to infantile convulsions.*

No.

1. Male, æt. 17. Circular furrow of incisors at junction of third and fourth quarter of crown, canines slightly affected.

At two years repeated convulsions, lasting about two months. (Broca, quoted by Castanié, loc. cit., p. 40.)

2. Male, æt. 23. Circular furrow of incisors, 1 mm. in diameter, in middle of crown; of canines one third from free edge.

At eighteen months convulsive attacks lasting three months, followed by contraction of upper extremities. Measles at seven years old; smallpox at ten. (Broca, loc. cit., p. 50.)

3. Male, æt. 21. Curved furrow, 2 mm. in diameter, on free border of incisors; straight furrow on first molars.

At six weeks convulsions lasting eight days, and complicating bronchitis. No suspicion of syphilis. (David, quoted by Rattier, loc. cit., p. 49.)

4. Male, æt. 22. Notched erosion of cutting edge of incisors; deep erosion of first molars.

A series of convulsions from twelfth to thirteenth month. Slight measles at sixth year. (Rattier, loc. cit., p. 40.)

5. Male, adult. Erosion *en nappe*, occupying a third of the central incisors, a quarter of the laterals, the apex of the canines, and half the first molars.

No.

During the first eighteen months frequent and severe convulsions. No trace of rickets. The convulsions left facial tic. (Broca, quoted by Rattier, loc. cit., p. 38.)

6. Male, æt. 39. Simple furrow of central incisors, 4 mm. from cutting edge; of laterals, 2 mm. from edge; on apex of canines; large molars very carious.

At about three years violent and repeated convulsions covering three days. No other infantile affection whatever. (Quinet, loc. cit., p. 52.)

7. Male, æt. 18. Erosion *en nappe* of central incisors close to cutting edge, less marked on laterals and canines, very marked on first molars.

From tenth to fifteenth month a series of convulsions, followed by convergent strabismus and deafness. No suspicion of syphilis. (Quinet, loc. cit., p. 54.)

8. Male, æt. 40. Dotted furrow on central incisors, less marked on laterals; apex of canines affected; very marked erosion of first molars.

At fourteen months severe convulsions. (Quinet, loc. cit., p. 57.)

9. Male, æt. 40. Notched erosion of upper central, and of all the lower incisors; four first molars wanting.

In second month severe convulsions. No suspicion of syphilis. (Magitôt, unpublished.)

10. Male, æt. 24. Furrow close to free border of incisors; canines healthy; first molars much affected.

A series of convulsions in first month. No suspicion of syphilis. Brother and sister healthy, and without erosion. (Combe, unpublished.)

11. Female, æt. 20. Furrow, 2 mm. from cutting edge of central incisors, 1 mm. from edge of laterals and canines, and close to neck of first molars.

Series of convulsions lasting six months, from eighteenth month. No suspicion of syphilis. Castanié, loc. cit., p. 50.)

12. Female, æt. 16. Notched erosion of cutting edge of upper central and four lower incisors; upper laterals normal; very marked erosion of first molars.

At ninth month a single series of convulsions, endangering life for several days. No other infantile affection whatever till the age of nine. (Castanié, loc. cit., p. 51.)

No.

13. Female, æt. 17. Jagged erosion of cutting edge, and furrow on crown of all incisors; circular furrow on first molars.

At the sixth month serious convulsions; from twelfth to eighteenth months repeated convulsions, but of less grave character. (Rattier, loc. cit., p. 39.)

14. Female, æt. 15. Notched erosion of cutting edge of upper central and four lower incisors; upper laterals normal; deep erosion of molars close to masticating surface.

At third month series of convulsions lasting twenty-four hours. No other infantile affection whatever till age of seven. (Magitôt, unpublished.)

15. Female, æt. 9. No alteration of remaining temporary teeth. Erosion *en nappe*, with extreme thinning close to cutting edge of incisors; very marked erosion of molars.

At one year a series of severe convulsions. No other infantile affection whatever. (Magitôt, 'Traité des Anomalies,' p. 270.)

16. Male, æt. 14. Simple furrow, 1 mm. long, in middle of crown of central incisors, nearer to free border on laterals, close to apex of canines; furrow on molars.

At fifteen months a series of convulsions lasting from twelve to fifteen days. No other infantile affection whatever. (Magitôt, loc. cit., p. 271.)

17. Male, æt. 20. Furrows very minute and on the same level half way down the crown of the four canines; second molars destroyed by caries; other teeth normal.

At eight years severe meningitis with convulsions, lasting about fifteen days. No other previous infantile affection whatever. (Magitôt, loc. cit., p. 270.)

18. Male, æt. 13. Simple furrow half way down central incisors, one third down laterals, and one quarter down canines; furrow on first molars.

At thirteenth month a series of convulsions lasting one month. No suspicion of syphilis. No other infantile affection until twelfth year.*

19. Male, æt. 18. Dotted furrow about one third from edge of central incisors, a quarter from edge of laterals, close to apex of canines, in middle of first molars.

Three series of convulsions, lasting several days, the first at the ninth month, and the others at one

* Observations 18—40 are unpublished cases of the author.

No.

week's interval. No suspicion of syphilis. Family numerous and very healthy, younger brothers and sisters never having been ill, and presenting no trace of erosion.

20. Female, æt. 20. Broad furrow with prominent collar half way down crown of incisors, less marked on laterals and canines; first molars wanting.

Series of convulsions from eighteenth to twentieth month.

21. Male, æt. 24. Erosion exclusively affecting the masticating surface of first molars, which are covered with sharp asperities.

Serious affection of mother towards the end of pregnancy, confinement at eighth month, followed by death some hours later (convulsions?). Further inquiry as to the mother elicited nothing. The patient had no infantile affection whatever. No suspicion of hereditary syphilis; no traces of scars on any part of the skin.

22. Male, æt. 9. Simple furrow half way down temporary upper canines, which persisted; notch on cutting edge of upper central and of four lower incisors. Masticating surface of molars covered with nipple-like prominences.

First series of convulsions at end of second month, lasting three days; five other series at intervals of a month. No other affection whatever till the age of ten. Parents very healthy, with no trace of syphilis; mother has had no miscarriages; a younger brother of patient, aged seven years, has never been ill and has no erosions.

23. Female, æt. 18. Notched erosion of cutting edge of upper central and four lower incisors; simple furrow close to masticating surface of first molars, two of which have been destroyed by caries following erosion.

At the third month series of convulsions lasting twenty-four hours, and imperilling life. No intercurrent affection till age of seven. No suspicion of syphilis.

24. Female, æt. 15. Deep notch of cutting edge of upper central, and of four lower incisors; upper laterals and upper and lower canines healthy.

At sixth month convulsive attacks lasting twenty-four hours. No intercurrent affection until seventh year. No suspicion of syphilis.

No.

25. Female, æt. 18. Dotted furrow at upper third of centrals, at lower fourth of laterals, at lower fifth of canines, and half way down left first molar; at same level on anterior lower teeth; the three other molars destroyed by caries following erosion.

At seventh month very serious convulsions occurring in three series at intervals of two or three days, the whole lasting about nine days. No other infantile affection. No suspicion of syphilis.

26. Female, æt. 21. Double furrow at lower third of upper central incisors; single furrow close to free border of laterals; double furrow at upper fourth of lower incisors; deep erosion *en nappe* half way down four first molars; canines healthy, but apices blunt.

Two series of convulsions, the first at the sixth month lasting twenty-four hours, followed by coma, and leaving behind it various disorders; the second at the ninth month, of much the same nature and duration. No infantile affection whatever till the age of eruption. Two brothers, one of whom had no illness in infancy, and the other had scarlatina severely at three years old, presented no erosion.

27. Female, æt. 20. Erosion *en nappe* of the twelve anterior teeth and the four molars, except the two left lower incisors, which were notched.

At four months a series of convulsions, lasting eighteen hours, threatening asphyxia, and leaving contraction of limbs on left side. Two days later a fresh series lasting fifteen days, each convulsion followed by coma. Mental disturbance up to eighteenth month. No suspicion of syphilis on thorough investigation. Younger brother healthy, and without erosion.

28. Female, æt. 20. In the upper jaw erosion *en nappe*, occupying nearly half the central incisors, one third part of the laterals, and the apex of the canines. In the lower jaw erosion *en nappe*, occupying a third of the centrals, a quarter of the laterals, and the apex of the canines; the four first molars destroyed by caries.

Numerous series of convulsions at eighth month, each followed by coma lasting from four to six hours. Patient presented certain signs of rickets in infancy, but rest of family healthy. The condition attributed to the mother having had severe smallpox during pregnancy.

No.

29. Female, æt. 22. Single furrow half way down all four canines.

At two years old severe meningitis imperilling life for three weeks. No other infantile affection whatever. No suspicion of syphilis.

30. Female, æt. 15. Single furrow half way down four first molars ; other teeth normal.

At three years four months, series of convulsions lasting fifty-six hours, and followed by coma lasting ten days. No other infantile affection. No suspicion of syphilis.

31. Male, æt. 17. Simple furrow one third down central incisors, one fourth down laterals, one fifth down canines, and half way down molars.

At eighteenth month severe meningitis with convulsions, acute period lasting three days.

32. Female, æt. 14. Erosion *en nappe* occupying one half the height of incisors, canines, and first molars.

Series of convulsions from tenth to eighteenth month. No other infantile affection.

33. Female, æt. 18. Dotted furrow half way down upper central and all the lower incisors, close to apex of canines, about half way down first molars.

Single series of convulsions, with profound coma lasting four hours. No suspicion of syphilis: Parents and two brothers without trace of disease.

34. Female, æt. 22. Furrow, 1 mm. in diameter, half way down central incisors, one third down lateral, one fourth down canines ; molars wanting.

At thirteenth month series of convulsions covering three weeks. No suspicion of syphilis on most minute inquiry.

35. Male, æt. 25. Dotted furrow just below cutting edge of upper central and four lower incisors ; upper laterals and canines healthy ; deep erosion of molars.

In the fourth month two series of convulsions, covering together twenty-four hours. The patient, son of a doctor, and himself a student of medicine, can give most precise family history, excluding all suspicion of syphilis.

36. Female, æt. 18. Notched erosion of cutting edge of upper centrals and four lower incisors ; furrow one third down first molars.

At sixth month a single series of convulsions lasting four hours. No other infantile affection whatever. No suspicion of syphilis.

No.

37. Female, æt. 20. Erosion *en nappe* occupying a third of the crown of central incisors, a fourth of crown of laterals; circular furrow near apex of canines; molars absent.

At fourth month series of convulsions lasting three weeks, and leaving serious affections until eighteenth month. No trace of hereditary syphilis on very careful investigation.

38. Male, æt. 11. Ladder erosion; six or eight indistinct furrows on incisors, canines, and first molars.

At sixth month a series of convulsions covering more than six months; eight to ten convulsions in each series, followed by coma.

39. Male, æt. 8, brother of preceding case. Furrow on upper centrals; upper laterals wanting; furrow on four lower incisors, and on four molars.

Series of convulsions at seventh month. Cases 38 and 39 are brothers. Father and mother very healthy; four other children perfectly healthy and without erosion. No suspicion of hereditary syphilis.

40. Male, æt. 25. Medical student. Notched erosion of cutting edge of upper central and four lower incisors, of apex of canines, and of a certain extent of first molars.

At sixth month a series of convulsions lasting five days, and caused by severe fall. The patient firmly believes the theory that erosion is due to hereditary syphilis; no trace of this affection.

This strict relation between infantile convulsions and erosion was demonstrated to my own satisfaction very long ago. Not to speak of previous researches which I myself have made, I can quote many monographs which support the same opinion, such as the theses of Dr. Quinet,* of Brussels, and of Dr. Castanié,† and Dr. Rattier,‡ of Paris, all of which contain analogous facts. Broca, as we know, has also given in his adhesion to this theory.

Looking at foreign authors, we find that Arlt attributes

* Quinet, "A propos des Dents Syphilitiques," 'Bull. de l'Academie Royale de Med. de Belgique,' t. xiii, 3e serie, No 1, 1879.

† Castanié, "De l'Erosion ou des alterations des Dents Permanents à la suite des Maladies de l'Enfance," 'Thèse de Paris,' 1874.

‡ Rattier, "Contributions à l'Étude de l'Erosion Dentaire," 'Thèse de Paris,' 1879.

zonular cataract and erosion of the teeth to convulsive attacks, and the same view is put forward, though less positively, by Horner and Davidsen. Lastly, M. Nicati does not hesitate to attribute to a similar cause both erosion of the teeth and that ocular lesion which might almost be termed erosion of the crystalline lens.

This opinion, which is now based on facts scientifically observed, has always been held as an empirical, and I had almost said, vulgar fact. I here appeal to physicians who will readily confirm me. Have not many of them, on meeting with a well-marked case of erosion of the teeth, asked, "Did this patient suffer from convulsions in infancy?" and been answered by the mother in the affirmative.

At the present time I no longer, when I meet with a case of this dental lesion, set it down vaguely to convulsions. I go further, and from the level of this furrow or that notch, infer the date of the attacks, their duration, and their intensity. The proceeding is very simple; it has been thoroughly formulated in the above table.

We see then what is the sum of the considerations that support a theory, which M. Parrot himself terms the theory of convulsive teeth; there remains, however, one more task, that of briefly answering the many apparently serious objections which M. Parrot has advanced.

These objections may be reduced to two. 1. It is said that infantile convulsions are incapable of producing erosion of the teeth. 2. That every patient who bears traces of erosion also presents evidences of hereditary syphilis. Let us briefly examine these two points. First, it is contended that an attack of convulsions, not lasting more than a few minutes, cannot interrupt the formation of the enamel and dentine for a sufficiently long period to leave an indelible trace; and M. Parrot adds, that supposing each attack to last one minute, it would take an enormous number of convulsions—from 42,000 to 600,000—to produce certain forms of erosion *en nappe*. It is true that if we regard the convulsive attack by itself, we see that it cannot possibly produce such results. But do we not know that this attack is but the external manifestation, the reflection of a pro-

found disturbance of the nervous system, and of the general nutrition? We can scarcely doubt this when we take into consideration the fact that convulsions have sometimes left behind them such grave lesions as loss of intelligence, strabismus, deaf mutism, stammering, contraction of the limbs, &c.

We know, moreover, that convulsions never occur singly, but in series, varying in number and in proximity to each other, so that the perturbing influence corresponds not to an isolated attack but to a series. Further, this series is shown by many observations to extend sometimes over ten, fifteen, twenty hours, each attack recurring every half hour, or every hour. A recent writer, Kien of Strasburg, quotes the case of an infant who suffered from a series of attacks, occurring every hour for fourteen hours, followed by a period of coma lasting six days, and interrupted by feebler and less frequent attacks. Here we have a grave perturbation of nutrition in an infant, lasting nearly seven days, during which the pulse reached 140 and the temperature 104° .*

We see, then, that disturbances of nutrition, under the influence of convulsions, can last quite long enough; and I have records of cases in which they were prolonged for months and years.

But this is not all. I made it my object to discover experimentally the amounts of dentine and enamel produced in a follicle in a given time, and, as a consequence, the extent and depth of the zone of tissue affected by a given disturbance. The following are the results:

In a puppy of five days old, suckled by its mother, the dentinal cap of the left canine was removed by a slight incision. The animal was at once returned to its kennel and continued to suck without any visible uneasiness. Ten days later, at the same hour, the dentinal cap of the right canine was in its turn removed. The two preparations have been cleaned and dried. They present a difference in height amounting to six millimètres, the smaller cap measuring six, the larger twelve millimètres. Six millimètres in ten days

* 'Gazette Medical de Strasburg,' 1880, No. 7, p. 73.

give six tenths of a millimètre per day, and a fraction over a fiftieth of a millimètre per hour. Disregarding the fraction, we have the following calculation. If a morbid cause had interrupted the formation of dentine and enamel in this little cap for only five hours, the furrow produced thereby would be more than a tenth of a millimètre across, that is to say, it would be visible to the naked eye.

Here are models taken from the living subject, showing furrows of this size, due to relatively short series of convulsive attacks.

If we pursue the calculation, we find that a series of attacks lasting ten hours, will give a furrow of two tenths of a millimètre, twenty hours four tenths, and so on. Consider then what would be the extent of an erosion due to a morbid condition lasting several months.

But this is not all. M. Parrot wonders why certain teeth are never attacked, the second and third molars, for instance, and he finds the theory of convulsion incompatible with this fact. Table I, given above, appears to me to provide a complete answer to this objection. We see there that the cap of dentine of the second molar does not appear on an average until three years and a half after birth, an age after which convulsions are extremely rare. Most physicians too, as we know, attribute them to the first dentition, which is finished at that date. As for the third molars, or wisdom teeth, their cap of dentine does not appear till the twelfth year, and thus they are quite beyond the influence of the cause in question.

It is the chronological relation between the evolution of the teeth, and the age at which convulsions most frequently occur, that causes the first molar to be so constantly affected in varying degrees, at various levels, its cap of dentine appearing at the sixth month of foetal life, though it is not erupted till the sixth year. It thus remains subject for more than six years to all the morbid disturbances to which childhood is liable. Further, the first molar very often presents erosion even on its masticating surface, a fact which implies an affection during foetal life. The same is true of erosion of the milk teeth, and M. Parrot has demanded an explana-

tion of this lesion, and asked whether I believe in the existence of intra-uterine convulsions. I am utterly ignorant of foetal pathology, I admit; but we frequently see accidents and diseases of the mother gravely affecting the embryo, and so playing at this period the same rôle that convulsions play during infancy. In a case of this nature in which the first molars alone presented erosion, an investigation into the history showed that the mother was attacked by serious complications between the seventh and eighth month of pregnancy, and that she died after premature confinement at the eighth month.

We come at length to M. Parrot's last objection, viz. that every subject of erosion presents traces of hereditary syphilis. My sole answer is to point to the summary of forty cases, given above. There we find a considerable number of cases in which the most minute examination of the parents, of the brothers and sisters, and of the patient himself, failed to reveal any suspicion of syphilis. The publication in detail of observations of this nature contained in my records would lengthen this article indefinitely without teaching any more than what I have given above.

Conclusions.

1. Infantile convulsions invariably produce disturbance of the intra-follicular nutrition, which results in one of the characteristic appearances of erosion.

2. These appearances correspond in *level*, *number*, and *extent*, with the *date* at which the convulsions occur, as well as with their *duration* and *intensity*.

3. The other diseases of infancy, eruptive fevers, catarrhal and intestinal affections, &c., are incapable of producing erosion. Certain severe and lasting affections may, indeed, lead to a total disorganisation of the crowns of the teeth, by interfering with their evolution, but not to erosion properly so called.

4. Hereditary syphilis, though it is impossible to deny its influence on the general constitution of the osseous and dental tissues, does not produce the characteristic appearances of erosion; and every subject of hereditary syphilis

who presents erosion will be found to have amongst his antecedents a history also of convulsions.

5. Erosions of the teeth when found in prehistoric crania are, for reasons adduced by Broca and the author, an evidence of infantile convulsions, the use of the trephine, traces of which were found on these crania, having been invoked for the cure of that malady.

6. Erosion of the teeth is met with in its most characteristic forms amongst animals which are never subject to syphilis.

THE MANUFACTURE OF NITROUS OXIDE.

DR. E. F. STEVENS thus describes his method of procuring nitrous oxide gas. Use burning gas for heating. Fill the retort half full of fused ammonia; do not pulverise it, but use as sold. Suspend the retort on the arm employed for that purpose, and turn the gas on full head, using a common Bunsen burner. Tap the bottom of the retort from side to side over the flame. When the ammonia is about half melted, shake the retort so that that which has clung to the sides may be thrown into the liquid portion. Connect the retort with the jars and set the burner directly under the centre. When the mass reaches the boiling point, turn the flame half down, and keep it at that point until all the ammonia is generated into gas. In this way a meter of forty-five gallons' capacity can be filled in one hour from the time of lighting the gas.—*Dental Cosmos*.

DEATH OF "OLD PRATT."

MR. R. PRATT, formerly of Broad Street, Golden Square, died rather suddenly on the 10th ult. at the house of his daughter in Cold Harbour Lane, S. E. He was followed to the grave by his children, and by his old friend and benefactor, Mr. J. A. Gartley, of Sackville St. This notice of his death will, we know, recall kindly memories to the minds of many of our readers.

British Journal of Dental Science.

LONDON, NOVEMBER 1, 1881.

DENTAL DEFENCE.

WE are not quite sure that it has been an unmitigated benefit to Dentistry to have always had before its eyes the example of a bigger and elder brother like the medical profession. It has no doubt been saved much time and trouble in respect to the mechanism of its organisation and the formulation of its ethics, by finding ready to hand patterns which it was able to copy; for it is always an easier task to imitate than to invent. But it is quite open to question whether the Dental profession would not have secured a better adapted organisation and a body of ethics of greater vitality had it been obliged to work them out by and for itself. It is quite possible that Dental politicians might have evolved something less clumsy than registration by a heterogeneous council, and something more fitted to its own special circumstances than a central Dental association, if it had not been overawed by the bulky organisations already in existence. Our own private opinion is that fewer difficulties would have been met with if there had been less centralisation. If the country had been divided, for instance, into a dozen registration districts, each with a machinery something like that adopted in many of the American States, where the Dentists are allowed to manage their own affairs, the evils at present complained of would, at any rate, have been minimised, while the system would not have cost a tenth of the funds that have been spent in the present machinery. In the same way, considering the great vitality that has been manifested by the local Dental associations, we are much inclined to doubt the expediency of the present policy of merging them in a big central body, and so in great

measure reducing their importance and individuality. Imitation is, of course, the safest plan where there is a want of originality, but we have yet to learn that the Dental profession is so servile and helpless as to have been unable to devise a constitution for itself. Besides, it must always be borne in mind that the strength and stability of every organism are proportionate to the intensity and duration of the struggle through which it has come into being.

It is not to be concluded from the above remarks that we would have our profession entirely ignore the experience and example of the medical body. The position, the purity, and the solidarity of that body are for us the ideals at which we ought to aim, and we shall do well to study the ways by which they have been attained. Even in its higher grades the profession of medicine is not altogether free from the taint of quackery, but regarded side by side with Dentistry it is comparatively spotless. And it is to be remarked that this result has been secured by moral not by legal force, by persuasion not by prosecution, by example not by punishment. There are, indeed, in existence certain bodies, such as the Medical Defence and Medical Alliance Associations, the object of which, so far as we have gathered it, is to defend not the public but the profession, from the incompetent and unqualified practitioner. But it is a notable fact that the leaders of the profession have given little countenance to such associations, and it is equally certain, if we may trust the evidence of their honorary secretaries, as published in a recent number of the 'British Medical Journal,' that neither association has received any very enthusiastic support from the medical body at large. The General Medical Council, too, which is the constituted guardian of the 'Medical Register,' and whose duty it is—if it is any one's—to guard the interests of the public as well as of the registered practitioner, has consistently refused to lend itself to the odious work of prosecuting unqualified pretenders. It has been charged with neglecting this portion of its functions, but we have yet to learn that such an assertion has been widely supported by the medical profession, as distinguished from the medical press. We would prefer

to believe that the profession, no less than the Council, has refrained from a policy of prosecution, or, as it is otherwise called, a policy of defence, from a broad and statesmanlike view that such a course would bring odium upon it without any certainty of accomplishing its purpose. If there are any facts which long experience teaches with certainty, they are these :—First, that public opinion always tends to favour the prosecuted and not the prosecuting side ; and, secondly, that all appeals to the law to protect a monopoly, however beneficial such monopoly may be, are invariably regarded with general suspicion.

If it is true that these facts are recognised and acted on by the profession of medicine, it is equally true that they are worth the serious attention of that of Dentistry. Possibly in our case some modifications may be allowed. A new monopoly may expect more indulgence than an old one, and time may be required for the growth of a healthy and efficacious professional opinion. But we are perfectly sure of this, that any policy which involves an appeal to the law courts, either at present, with the object of purifying the Register, or in the future, with the object of protecting the privileges the Register confers, ought to be regarded with the greatest suspicion, and only carried into effect when it is plain that it is backed by the whole profession.

It was unfortunate that the rules of the Medical Congress did not admit of the discussion of the important subject raised by Mr. Stocken at the closing sitting of the Dental Section, for the report of which we must refer our readers to another column. A great deal has been said lately, and a great deal remains to be said, about as to the advisability of the Dental Surgeon treating his patients constitutionally. That such a course is frequently necessary will be readily admitted, but granted that it is advantageous, is a practitioner holding simply the Dental license of the College of Surgeons capable of carrying it out? Whilst fulfilling his

curriculum at the hospital, he has had a course of lectures on materia medica, and may have picked up many hints in his daily practice, but he has had no experience in pharmacology. In very many instances he has but crude notions as to the manner of administration of the simpler drugs, and often is even imperfectly acquainted with the formulæ used in writing prescriptions. This is rather humiliating perhaps, but it is true, and under such circumstances how can he treat a patient constitutionally. A course of lectures on materia medica is in itself perfectly inefficient, as unless the student has some previous knowledge of the subject, it is impossible to remember it in such a manner as to put it into practical account. Mr. Stocken was no doubt right when he said that every Dental practitioner ought to have a thorough knowledge of the value of constitutional remedies in Dental practice, and whatever opinion is held as to advisability of systematically using such knowledge, few of us would regret a chair of pharmacology attached to every Dental school.

THE armies of all countries, as we know, are fond of boasting of their *esprit de corps*, but it has been left to a certain Russian Dentist, of Nijni Novgorod, with the unpronounceable name of Chruschtschow, to illustrate that feeling in a new and very practical manner. A corporal in the Russian army came to him complaining of agonising pain in the root of his left upper central incisor, the crown of which had been knocked off by the butt end of a rifle in the Russo-Turkish war. The tooth extracted, the soldier—a strong young fellow, whose age had not yet rendered him indifferent to personal appearance—begged most earnestly to have another inserted in its place. The Dentist bethought him of an incisor which he had removed from a general's wife three weeks before, and which he still had by him. He washed out the alveolus, painted the gum with chloroform, inserted the tooth, and secured it with coffer dam. A fortnight later the tooth was found to be quite firmly fixed, and by this time we hope it has forgotten its aristocratic delicacies, and

settled down unrepiningly to do its best with the fare of a common corporal.

THE Dental Students' Society of Berlin, which was founded last year, has just celebrated its first anniversary, and published an excellent record of its twelve months' work. It has held twenty-four ordinary meetings, and discussed nineteen different papers. Its members have set an example which might with advantage be followed by the students of other countries. They have entered into a solemn undertaking never henceforward to compete for the title of doctor in a foreign university. No German student of Dentistry, who earnestly wishes for the elevation of his profession, ought, they contend, ever to strive for an American degree.

THE Central Association of German Dentists held its twentieth annual meeting at Heidelberg in August, and faithfully carried out the programme laid down for it. We shall give a sketch of its more serious proceedings in another number, but may here state that it was decided that the 'Veierteljahrsschrift,' the well-known organ of the association, should continue to appear as a quarterly for the present, and that the next annual meeting will be held in Berlin.

THE local programme of the association was most successful. The visitors were received on the evening of their arrival in the Museum Garden, the next evening they assembled in the "Castle" restaurant, and inspected the castle ruins. Another evening they held a festival supper, from which, however, for the first time in the history of the association, the moderating influence of the ladies was excluded. The last evening was spent in a country excursion to Ziegenstein, whence the members returned to Heidelberg in the evening, down the Neckar, "on a with-

lanterns-adorned, and with a musical-chorus-occupied boat." Everywhere they were greeted from the shore with the firing of cannon and with Bengal lights, till, on their arrival at Heidelberg, the ascent of a rocket gave the signal for a most magnificent surprise, viz. the illumination of the castle ruins. They are wonderful people, these Germans. Imagine the members of the British Dental Association steaming down from Richmond some soft summer night, and being greeted with blue lights in the Houses of Parliament!

The Dental Examiner.

[*Note*.—Dental materials and appliances intended for notice in the "Dental Examiner" should be sent to the Editor at 11, New Burlington Street, W. All preparations not generally known should be accompanied by a lucid description and a clear statement of their composition. The formulæ supplied *will not be published* unless a written permission is given by the maker.]

A FEW MORE WORDS ABOUT STOPPING MATERIALS.

It is now about fifteen years since the profession hailed with evident satisfaction the introduction of a white mineral stopping material which it was said would supersede, in appearance at least, every other filling yet introduced, taking the place of gold and all amalgams. Under various names and with some trifling additions the oxychloride of zinc has been and is still, employed in large quantities, but we have no hesitation in setting it down as one of the most unreliable fillings ever introduced to the profession. As a treatment, or as a temporary stopping, it is valuable, and it must be acknowledged that in some mouths it lasts longer than in others, but as a permanent filling for universal application it cannot be too strongly condemned and should be avoided, more particularly now that gutta percha is so well understood, and is brought to its present improved manufacture. The oxychloride is very valuable for temporary purposes, and it

may also with advantage be used as a base for other fillings, particularly in large cavities. Many attempts have been made to improve it by mixing with it other materials, but after careful examination, repeated trials, and long experience, we are justified in condemning it altogether for permanent fillings. I lay particular stress upon these opinions because year after year we find many members of the profession employing it with confidence. As a preservative dressing it is very valuable for arresting decay where properly inserted, and being a non-conductor of heat, it will give comfort when an amalgam would be painful and useless. Most Dentists have observed that it wears best on the masticating surfaces and worst upon the cervical margin. Many excellent preparations are now in the market which we propose to notice from time to time, but as we consider that it will hardly repay any ordinary practitioner to make his own materials, it is useless to enter into the particulars of its manufacture, more particularly as they have been published and are well known.

When the oxychloride is used as a liner, the tooth should be filled one day and the upper portion cut out the next, and the gold or amalgam as may seem desirable added. In practice, such stoppings are found to be very durable; and it must not be forgotten that the oxychloride of zinc is also a good restorer of colour in discoloured teeth when that discoloration is not owing to the presence of silver, and even in these cases it has, to a certain extent, a bleaching property. The ordinary preparations used for this purpose we are inclined to pass over, for even in front teeth an oxychloride filling capped with gutta percha, which can be done at one sitting, is preferable to any questionable bleaching powder, however carefully manipulated.

Oxysulphate of zinc fillings will never be used by any one who has had extended experience excepting as a protector for exposed pulps, or in teeth that have become sensitive from encroachment upon the nerve chambers. Nor have we much confidence in the durability of phosphate of zinc. It so easily decomposes, and it is so seldom in a condition fitted to mix properly, that we must regard it as a dangerous

material to employ in the surgery. We are quite aware that when the zinc phosphate sets rapidly it forms a very hard and stone-like plug, but even in this condition it does not appear to be thoroughly insoluble in the mouth; and we have seen so many stoppings, inserted with every care, fail, that we are justified in recommending the greatest caution where it is employed.

We are quite prepared for the statement that in these notes upon materials recommended for filling teeth we have not advanced anything that is particularly new, our object has been rather to place before our readers, in the simplest language, our opinions upon this important branch of our profession, in order that we may clear the way for more particular examination of those things we think worthy of the most minute examination. We have marked our appreciation of gold as a stopping material, but we have also given our opinion pretty freely as to the uses of amalgams, and we leave to the profession the experiment of making waferings, that is, filling the body of a tooth with one amalgam and putting on the top of it a wafer made of amalgam from which the greater part of the mercury has been pressed out by pliers. The two alloys noted in the last article furnish a very good illustration, for the body of the tooth may be filled with No. 2 and capped with No. 1, the compositions of both being very similar, only that No. 1 discolours less. We have also warmly recommended gutta-percha fillings if good material is obtained and attention paid to the directions for the insertion of such fillings. It is too early to say much more about platinum alloy stoppings at present, but we believe that they will prove in the future very useful and economical.

THE "KEPLER" MALT EXTRACT. FELLOW'S COMPOUND SYRUP OF HYPHOSPHITES. THE "BURROUGHS" BEEF AND IRON WINE. Introduced by Burroughs, Wellcome, & Co., Snow Hill.

ALL these preparations have been before the medical world for some time and have received commendation from the medical journals generally. To the Dental Surgeon they are also useful agents, and may be recommended, with

the approval of the medical practitioner in attendance, with confidence. The malt extract may be taken in all cases where cod-liver oil would be recommended, and to growing children during second dentition, it may be administered even with their food two or three times a day. Its power in assisting the digestion of starchy foods is quite remarkable.

A syrup containing the hypophosphites of iron, quinine, strychnia, manganese, lime, and potash, is not only a nerve tonic, but very useful in strumous conditions generally, and therefore valuable to the Dental Surgeon who is continually brought in contact with patients for whom he has hitherto had to recommend phosphites in one form or other. Young children particularly, where emaciation and prostration presents itself, will find a dose of twenty drops three times a day largely diluted with water of the greatest advantage.

Preparations of beef and iron are now very generally recommended for their strength-giving and tonic qualities, and the preparation known as Burrough's beef and iron wine is decidedly one of the best of its class. It has been largely recommended, and as each fluid ounce contains the nutritive value of two ounces of beef with four grains of citrate of iron, it is a food and a digestive at the same time. Independent of its use for children and invalids, it is particularly valuable for the overworked medical or Dental practitioner. As it is not disagreeable in taste, half an ounce taken in the midst of professional work will be found to be exceedingly valuable. We speak from personal experience, and can assure those who give it a trial that they will feel its invigorating effects, adding instead of taking away from their appetite when the dinner hour arrives.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

THE opening meeting of this Society will take place on the evening of Thursday the 10th inst., when an introductory address will be given by the new President, Dr. J. Smith, F.R.C.S.Ed. A discussion on "The Endowment of Research in Dentistry" will follow the address.

Review.

Surgery for Dental Students. By ARTHUR UNDERWOOD, M.R.C.S., L.D.S.E. London: W. H. Allen and Co. 1881.

WE have already briefly expressed our opinion as to the merits of this manual. It is confessedly a cram-book, and as such will no doubt be well appreciated by those for whom it is written. It is not without the faults to which the genus "cram-book" is liable.

We should be sorry to have any illness of ours diagnosed and treated exclusively by its directions. We should be disposed to rebel, for instance, against having our larynx opened, or even scarified, in our next attack of acute laryngitis, a disease which, *pace* Mr. Underwood, is in adults seldom dangerous, and almost never fatal. But, as the final cause of the volume is the satisfaction of the examiner, and not that of the patient, such criticisms are possibly beside the mark. Speaking broadly, the faults of the book are those of the system which has produced it, while its virtues are to be credited to its author. It is useless to expect any decent surgical teaching or satisfactory surgical literature for the mass of students—of the higher teaching and literature of surgery we say nothing—so long as the present system of examination prevails in Lincoln's Inn Fields. When students cease to be regarded by examiners like batches of candidates for minor Post-office appointments, there will be some chance of surgery being recognised by the mass of students for what it is—the most satisfactory, and the most satisfying of all the branches of morbid biology.

Mr. Underwood's first chapter, dealing with the generalities of life, health, and illness, is the best in the book, clear, fresh, and well written. It appears to contain the impress of the author's mind more than any of the succeeding chapters, and shows what might have been but for the examiners. Chapters II and III contain the usual surgical generalisations about gangrene, hypertrophy, and atrophy,

tumours, cysts, &c., admirably arranged and numbered for packing away in sleepy brain-cells, and for counting on unoccupied digits. On p. 14 ergot should have been placed under the first heading, as its action in producing gangrene is by obstructing the arterial supply. On p. 36 it should have been mentioned that the term hæmatocele applies to pelvic as well as testicular exudations. The chapter on inflammation is excellent, and we will only pause to remark that the view that the false membrane of diphtheria "implicates the submucous tissue much more exclusively than in croup" (p. 49) is old fashioned, having been given up even by Virchow, who first originated it, while E. Wagner, one of the chief, if not the chief authority on the subject, states that his preparations of diphtheritic and croupous deposits are practically identical.

Passing over the chapter on wounds and fractures, we come to Chapter VI, on the clinical and surgical aspect of inflammation, of which we may express a general approval, while offering one or two minor criticisms. In describing the operation of wet cupping—a valuable means of treatment now too much neglected—Mr. Underwood forgets to mention that the dry cup must be applied first before the skin is scarified, otherwise the blood will certainly not immediately fill the empty glass when it is "clapped over the wound." We must also take exception to the statement that purgation lowers the temperature, as it is a generalisation resting on no satisfactory evidence. This action of purgatives was not even mentioned in the recent discussion on antipyretic medicines during the Medical Congress. Lastly, we think that Mr. Underwood might perhaps have spoken with a little more reserve in recommending antimony, mercury, blood-letting, and purgatives in the treatment of sthenic inflammation, as there is a large school of medical practitioners who regard such treatment as altogether inadmissible. In the next chapter, on hæmorrhage, we remark that the author mentions only one of the three forms of acupuncture; while in the chapter on fractures he omits "osteomalacia" as one of the causes leading to the fracture of bones. The ninth chapter, on "Injuries to the Head, &c.," is very carefully

written, and gives evidence of much thought and experience on the part of the writer. The same may be said of the next chapter, with the exception of the section on disease of the larynx, which is not altogether satisfactory. The remainder of the volume is taken up by short chapters on venereal diseases, injuries and diseases of the nerves, and anæsthetics, and an appendix containing the questions set at the English College of Surgeons for the Dental license since 1872. The whole is printed in very readable type, but contains unfortunately a very unusual proportion of printer's errors, especially in regard to the diphthongs æ and œ, and the spelling of proper names.

We have made the above remarks not in any spirit of captious criticism, but fully impressed with the value of the book as a Dental student's manual. It will be found admirably adapted to their requirements, while it may also be recommended to the Dental practitioner as comprising in small compass the chief facts and generalisations of surgery, a knowledge of which is necessary for the proper practice of his specialty.

Literary Notices and Selections.

REPAIR OF A FRACTURED INCISOR.

LAST May, Harry B—, a lad of fifteen, received a blow in the mouth from a bat in the hands of a comrade, which fractured the right central incisor. About one hour afterwards he came to my office with his father. Upon examination, it appeared that the line of fracture, starting about half-way between the cutting-edge and the neck of the tooth, on the right approximal surface, extended diagonally across the labial and lingual surfaces to within a short distance of the free margin of the gum on the left approximal surface. The lower portion of the tooth, although movable, was still retained in position by the pulp.

An anæsthetic was administered, the broken portion removed, and the pulp extracted. The broken portion did not exhibit any lines of fracture in itself, and the idea

instantly presented itself to me of pivoting it in its original position. This was effected as follows: after the inflammation caused by the blow had been subdued and the canal filled, the little end of the pulp cavity in the broken portion was enlarged and a platinum post firmly fixed therein with oxyphosphate. The cavity in the root being also enlarged and filled with soft oxyphosphate, the pivot was firmly carried to its original position, or nearly so—the extending of the surplus of the cement preventing the broken edges from quite meeting. The patient was then dismissed for a week. At the next appointment, a groove was cut around the tooth in the line of fracture with a fine, round bur, followed by an inverted cone. A gold filling was then inserted in this groove, and the operation was complete. On examining the tooth a few days ago, it appeared to be perfectly firm, and with little in colour or appearance to distinguish it from its fellows beyond the narrow line of gold across its face.—(S. R. W. in ‘Dental Cosmos.’)

MAXILLARY ABSCESS.

UNDER this heading Dr. Goodville read a very interesting paper before the New York Odontological Society. By maxillary abscess is meant an extension of the conditions met with in alveolar abscess; if the sac becomes enlarged, the surrounding alveolar structure gives way and the pressure very often forces out the external wall. After great distension the sac bursts and the pus escapes in various directions, setting up trouble in the adjacent parts. As this involves more hard or soft tissues than alveolar abscess, and the conditions and complications are of a more serious nature locally and constitutionally, it has been distinguished by a separate name. The following cases (though not the most typical of those given) will help to illustrate the point. A gentleman, aged 56, had suffered severely for about eighteen months from neuralgia of the left side of the neck and arm for which he had been treated in vain. He had had an attack of acute suppurative tonsillitis of the left side. The mouth was carefully examined, and after due consideration

a suspicious left inferior wisdom was drilled into, and on the removal of the drill pus escaped from the opening. The tooth was removed and a very large abscess was found adherent to the roots. The pathological story is this, attrition removed the enamel, then followed chronic pulpitis, death, and decomposition of the dental pulp. This set up suppuration, and the pus finding its way to the tonsil gave rise to the symptoms described. After a short treatment the patient made a complete recovery. In another case, Mary A— had some inferior molars filled on the right side, and soon afterwards suffered from neuralgia of the head, neck, and arm. Her family physician put her under treatment for malaria. When she applied to Dr. Goodville, some months afterwards, there was a slow-growing tumour about the size of an English walnut on the lower third of the masseter. The swelling was without pain or redness, and there was very little motion in the jaw. As it appeared that the enlargement was due to a chronic abscess connected with the roots of the molars they were removed, when about half an inch of a steel nerve broach was discovered sticking through the apex of the second molar. With a short amount of treatment all the untoward symptoms disappeared entirely. Other very interesting cases are given where aphonia, local anæsthesia, and partial paralysis have resulted from maxillary abscess. In such instances two methods of treatment are employed, namely, either to extract the tooth, or to save the tooth and trephine through the bone into the cyst. The removal is the more simple and effectual, and if this plan is followed it is always better to subsequently pass an instrument up the tooth socket into the abscess cavity to break it up, and then apply caustic. If the bone is trephined it must be thoroughly done and a free opening from the mouth obtained, and then some such caustic as chloride of zinc or a saturated solution of iodine applied to the cyst surface.

The parts must be frequently dressed and the cavity well syringed with water, keeping the opening patent by means of an antiseptic dressing, and using all means to favour the formation of granulations from the bottom of the cyst.—

Dental Cosmos.

International Medical Congress.

SECTION XII.—DISEASES OF THE TEETH.

Tuesday, August 9th, 1881.

ANTRAL ABSCESS.

THE proceedings of this morning commenced with the reading of a paper by Dr. TAFT, of Cincinnati, on "Antral Abscess." The author divided his remarks into the following heads:—(1) Description of the cavity itself and the parts about it; (2) a reference to more simple affections; (3) affections of a more complicated nature; and (4) the influence of disease arising in this cavity upon other and neighbouring structures.

1. This cavity (the antrum) is situated in the superior maxilla; it is triangular in shape, its apex, directed outward, being bounded by the malar process, and its base, directed inward, by the outer wall of the nose. It is bounded above by the orbital plate, below by the base of the alveolar process, in front by the facial surface, and behind by the zygomatic process. Its walls consist for the most part of thin plates of bone, and especially is this true of its anterior or facial wall, and of the plate which separates the cavity from the orbital and the posterior wall as well. The latter is generally a little thicker than either of the others. The floor or alveolar part is thick and straight. The aspect of the inner surface of these plates may properly be noted. The antral surface of the orbital plate is convex, varying somewhat in this respect in different cases, but usually more so at the anterior than at the posterior part. The superior surface of this plate forms the floor of the orbit. The floor or most dependent part of the antrum is formed by the superior part of the alveoli together with the outer border of the palate bones. The surface of this part of the cavity varies in different cases and at different periods of life. In some instances it presents a convex form more or less marked, the greater convexity appearing when the roots of the teeth are large and long, one and more of which will sometimes perforate the floor of the antrum. In other cases it will present little or no convexity but is more or less undulating, sometimes having ridges or partitions extending across it. The anterior wall extends from the inferior border of the orbit to the alveoli and from the canine fossa backward beneath the base of the maxillary process of the malar bone. The upper border of the wall is perforated by the infra-orbital canal, the orifice of which is from two to three lines below the inferior ridge of the orbit. This orifice as it passes inward and backward forms a deep groove or canal on the under surface of the floor of the orbit; the canal gives passage to the infra-orbital nerve, artery, and vein. The form and size of this cavity and its contiguous parts largely govern the form and size of the face. At maturity it will contain from two to four fluid drachms. The antrum renders the facial region less dense and heavy than it would otherwise be, and is instrumental in giving greater resonance to the voice.

2. The most simple form of affection to which the antrum is subject is engorgement by watery or mucous effusion, which will take place when the canal leading from the cavity is closed. This may occur by the thickening of its membrane by inflammation, as from nasal catarrh or any inflammatory affection of the nose, or it may become closed by thick or dried matter upon or within the orifice; this closure being effected, the escape of the normal secretion of the lining membrane of the cavity is prevented and accumulates to repletion. The presence of an excess of secretion doubtless stimulates the membrane to more than a normal activity. This state of things may exist and still a definitely diseased condition not occur. The only indication of the affection, in the early stages at least, will be first a slight feeling of increase of weight in the part, and after the cavity is completely occupied, a sense of fulness and pressure. This will be modified by the activity of the secreting process within, together with the irritability of the parts pressed upon. This engorgement often produces expansion of the cavity by pressing outward one or more of the walls, the weakest or thinnest being susceptible of course of the greatest displacement. In some cases the anterior or facial wall is so much thinner and less resistant than any of the others that it only is pressed outward and thus marked protrusion of the cheek is presented. The pressure occasioned by this protrusion may cause irritation and soreness of the tissues upon the outer surface of this wall, so that redness and thickening will appear. The contents of the antrum during the affection will vary in different cases. In some they will remain for a long time in apparently an unchanged condition without offensive odour, change of colour or consistence, or vitiation of any kind; but in other cases, and perhaps far more frequently, a more or less marked change takes place, resulting in a vitiated, acrid, and offensive state of the contents. This may occur from the presence of local irritation, influences such as diseased gums, alveolar abscesses, and the diseased roots of teeth that may be in near proximity to, or perforate, the floor of the antrum. More frequently the vitiated condition of the accumulation is occasioned by and is dependent upon low tone, defective nutrition, or a tendency to degeneration. If the membrane is much diseased its secretion will be correspondingly affected, and, on the other hand, as the product becomes vitiated, it increases the disease of the membrane.

In those cases where the condition of the system is good, and the engorgement is produced wholly by local causes, the accumulation possessing little or no vitiation, local treatment only is required. In a state of general good health this affection will occur only from one of the following causes:—Closure of the canal leading from the cavity, or from the influence of diseased roots of teeth in close proximity to, or perforating the antrum, and from blows or violence upon the face, which may fracture or displace the facial wall. Preparatory to treatment, the cause should be definitely and accurately ascertained by examination of the history of the case. This knowledge will usually indicate the proper course of procedure. In all cases of engorgement the natural outlet is closed, but this may be only incidental and may disappear at once upon the evacuation of the chamber. In some cases it is otherwise however, and the engorgement will be found to have originated from closure of the canal in one of the ways already referred to. In such cases, if the teeth are all present and free from disease, attention should be directed to opening the canal by removal of any accumulation upon or

within its orifice, and by bringing to a cleanly condition the lining membrane of the nose. If by this means the opening is not effected, a properly formed instrument may be passed through the canal and in this way break up any adhesion or remove any obstacle that may exist. The instrument for this purpose should be of such size, form, and elasticity as not to lacerate or injure the parts. This operation has been declared by some to be impracticable, but the facility with which it has been performed and the good results obtained fully warrant the statement that it is one of much value. The removal of a sound, healthy tooth, in order to effect an entrance into the antrum, should only be resorted to when no other expedient is practicable. It is sometimes proper and preferable to make an entrance into the antrum through its anterior wall at the posterior edge of the canine fossa; care should be exercised, however, to make the opening as nearly on a line with the floor or most dependent part of the cavity as possible. The opening should be in the mouth and never externally. The more common, and in some respects best method of making an entrance, is through the socket of one of the roots of the first or second molar. Generally this is rendered practicable by decay or other disease of these teeth. In nearly all the cases of diseased antrum one or more of their roots perforate its floor, but usually the openings thus produced will require enlargement. This may be effected by the use of a large burr with a dental engine, but if after removal of the tooth or roots the thin plate of bone should require to be cut through by the burr or trephine, care should be taken that no part of the bone is forced into the cavity. The size of the opening would be governed by the character of the disease and the treatment to be employed. A comparatively small opening may suffice for exploration and the mere injection of fluids, but if manipulation is to be made within, the opening should be much larger. The opening having been made evacuation takes place. This may be only partial if there are prominent ridges or partitions throughout the cavity. A thorough washing should now be made by the syringe with a warm, mild solution of chloride of sodium, the objects sought by such washing or thorough cleansing being gentle stimulation, disinfection, and antisepticism.

3. In milder forms of disease of this cavity, over-treatment should be sedulously avoided; mistakes in this direction are frequently made. If, however, the accumulation is offensive in odour and acrid, then disinfectants and antiseptics of a more vigorous sort must be employed. Solutions of permanganate of potassium, carbolic acid, tannin, and salicylic acid are agents from which good results will be obtained, when used as just indicated. The canal from the antrum to the nose, if closed, may generally be opened by injecting fluid through the socket of the tooth, but the latter should be kept open so long as drainage is required. When the occasion for this ceases, closure of the opening should be effected. Where there is a strong vitiated discharge, attention in diagnosis should be directed to the condition of the general system, and locally to the lining membrane of the cavity, and, again, to the condition of the bone, especially of that part contiguous to the roots of the teeth, and lastly, to any affected teeth that might exercise a deleterious influence. If any such cause of irritation is found, it must be removed or neutralised. Suppuration of the lining membrane of the antrum is not unfrequent. The discharge may consist wholly or only in part of pus. In either case it is important to ascertain the condition of the structure from which it proceeds.

It may issue from a thickened and diseased membrane only, or from a tumour or polypus. For examination in these cases an instrument proper in size and form should be at hand. The entrance into the cavity should be large enough to admit of free manipulation, especially if removal of the structure is found necessary. In the absence of tumour or polypi the pus comes from the diseased membrane. For the treatment of this difficulty, in addition to the therapeutic principles already indicated, escharotics will serve a valuable purpose; often they are indispensable. Of those available, nitrate of silver, chloride of zinc, sulphate of copper or iron, chromic acid, and sulphuric acid may be mentioned. Over treatment in this class of agents is a too common fault which must be avoided if the best results are to be effected. It is important in any case to determine to what extent the discharge serves as an irritant to the tissue from which it proceeds or with which it comes into contact. This will determine, too, to what extent disinfectants and antiseptics are indicated. There is much less danger from over treatment with these than in the case of escharotics.

4. Of the graver and more serious forms of disease that occur in this cavity, which require both diagnostical ability and operative skill beyond that of the average Dental practitioner, it is not proposed to speak, but your attention is asked for but a few moments to some of the effects of disease of the maxillary sinus upon the contiguous organs and parts. When by engorgement or by tumour expansion and enlargement of the cavity takes place, the contiguous parts are necessarily encroached upon and thereby suffer impairment of function, and in many instances well-defined disease and sometimes total destruction results. The eye not unfrequently becomes affected either sympathetically or by extension of the antral disease so as to involve the ophthalmic nerves, and even the destruction of the whole eye, thus impairing or destroying vision. Again, the eye is sometimes impinged upon by an upward pressure of the floor of the orbit, this resulting in displacement and loss of the organ. Too often mistakes in cases of this sort have been made by directing attention and treatment to the eye and wholly overlooking the antral disease. Mr. Heath in his excellent work upon 'Injuries and Diseases of the Jaw,' p. 148, gives a case that will illustrate the statement just made. Indeed, he gives a large number of cases to the same purport. He says: "The elevating the floor of the orbit may simply displace the eyeball and render it temporarily blind, as in a case to which Mr. Salter called especial attention in the 'Medico-Chirurgical Transactions' for 1862. This was a young woman, twenty years of age, who was attacked with violent toothache in the first right upper molar, which was followed by enormous swelling of the side of the face and intense pain. The eyeball then became protruded, and she soon after perceived that the eye was blind. Shortly after the establishment of these symptoms antral abscess pointed at the inner and then at the outer canthus, and a large discharge of pus at both orifices followed. These orifices soon closed, but the general symptoms of the part continued unchanged—swelling of the face, protrusion of the globe, blindness. The condition of the eye constituted the most important symptom and the most distressing. The sight was utterly gone and the globe prominent and everted. There was general deep-seated inflammation of the fibrous textures; the pupil was large and rigidly fixed; it did not move co-ordinately with the other under any circumstances. Upon examination and treatment of this case it was found that the tooth referred to was

the exciting cause of the disease in the antrum and thus the occasion of the distressing symptoms exhibited in the eye." The infra-orbital nerve occupies a position in the floor of the orbit which renders it liable to injury by pressure beneath the floor, and the result is facial neuralgia. The accompanying artery and vein may by the same means be impaired. In the regions posterior to the antrum there are many delicate structures whose functions are apt to be interrupted or destroyed by disease occurring in the antrum. Among these are the contents of the sphenomaxillary fossa. Sometimes disease occurs in this region which requires operative interference. Important nerves pass to and from the sphenopalatine ganglion, and the superior maxillary nerve as it emerges from the foramen rotundum crosses this fossa. These structures, delicate and sensitive, can hardly remain free from disturbance and functional derangement with disease in such close proximity as that in the antral cavity affords. Cerebral disease has originated in disease in the antrum with the most serious and fatal results.

MR. HUTCHINSON, in the course of some favorable remarks upon the paper, observed that Dr. Taft deprecated the extraction of the tooth unless it was perfectly hopeless, and said that it was possible to enlarge the hole in the root of the tooth and to treat the abscess through the root. It seemed to him that, coming from a man of Dr. Taft's authority, that was a statement which might be rather misleading to students and the younger men in the profession. They should know whether there had been any great success in treating antral abscess in this way. Mr. Cattlin, in a paper which he read before the Odontological Society of Great Britain some twenty years ago, dealing with this subject, very strongly laid down the dictum that it was very much better to extract the tooth than to adopt any milder measures. Mr. Hutchinson wished to call Dr. Taft's attention to the beautiful collection of models of the antrum that exists in the Museum of the Odontological Society, in which that gentleman might be interested. Among the collection were some very beautiful specimens contributed by Mr. Cattlin at the time he wrote the paper which he had referred to. One of them had a very well-marked division—quite a partition of bone separating the two halves of the antrum one from the other, and that existed on both sides of the mouth. With regard to the agents used for washing out the antrum, he would like to ask Dr. Taft whether he had made any experiments with the syringe invented by Mr. Clover for washing out the contents of the bladder after lithotomy. It was a sort of syringe and aspirator combined, the object being to inject the purifying agent, be it chloride of zinc, eucalyptus oil, or whatever might be employed, after which the apparatus acted as an aspirator, and sucked out everything that had been syringed in, together with any fragments of bone or loose pieces of root or what not. He (Mr. Hutchinson) had not had a very large experience in antral abscess, although occasionally a case was seen at the Dental Hospital, but he would ask Dr. Taft to take this particular instrument into his consideration.

MR. C. TOMES said his own experience of antral abscess extended over but a small number of cases, but Mr. Coleman, who was not present, had requested him to say a few words. It was perfectly unnecessary in a large number of cases of antral abscess to use any syringe at all. The patient with a very small amount of education could by filling the mouth with a lotion—say with a weak solution of Condy—force it through the opening that had been made into the

antrum and out through the opening into the nares, where it would run from the nose or from the throat. With a very small amount of trouble patients could be taught to most efficiently and thoroughly wash out their antra without being bothered with any syringe or anything of the kind, and that through an opening of only small size. With regard to the question of treating antral abscess through the root of the tooth in preference to extracting it, he thought the consequences of antral abscess were so very much more unpleasant to the patient than the loss of a tooth, that he would very much hesitate to adopt it except as an experiment in a very mild case.

Dr. TAFT wished to correct the impression that he had stated in the paper that treatment should in any case be made through the canal of the root of the tooth. What he had said was that it should be made through the socket after the extraction of the tooth. He had never known of a case of diseased antrum being treated through the canal of the root of the tooth.

"A SUGGESTION THAT THE TERM 'CARIES' BE ABANDONED AS INAPPROPRIATE."

Dr. DENTZ (of Utrecht) then read a paper with the above title. He said he was very glad yesterday to hear Mr. Coleman and Dr. Iszlai express their desire that the profession should be more accurate in its terminology. He thought this was a question with which this section of the International Congress had a perfect right to deal. Here were assembled the most eminent men in the profession, and their opinion could not fail to have great influence on the profession at large. He did not propose to abolish the term caries altogether. They could only express their opinion that the term "caries of the teeth" should be changed for some other, and the following considerations had led him to make this proposal. He did not think it necessary to speak about the nature of caries of the teeth. To a certain degree it seemed that that subject had been sufficiently treated; at least, the result of all the investigations made until now—let them be ever so different in other respects—agreed in the fact that caries of the teeth is entirely different from caries of the bones. Now, if that were the case, why should the same name be applied to both? Those gentlemen who had studied both processes were able to distinguish the one from the other, but to medical men and surgeons who, as a rule, did not make a special study of diseases of the teeth, "caries of the teeth" had the same meaning as caries of the bones, and they thought that the two processes were identical. As an illustration he might mention that about eighteen years ago, when still a medical student, he resolved to pass an examination in Dentistry, which, by the way, in his country (Holland), was passed before a commission consisting exclusively of medical men. The Professor of Surgery asked him what "caries of the teeth" was, and not knowing any better, he gave a description of caries of bone, and the professor was perfectly satisfied with the answer. A short time afterwards, however, he (the speaker) perceived that the mistake they both had made was concealed by the erroneous name given to the disease. He had always found that Dental students generally understood what caries of the teeth meant pretty well, which he attributed simply to the fact that they had not learnt what caries of bone was. The medical student, however, took much more time to distinguish the two processes and

consequently it was most necessary to keep the distinction before him. Nobody would say that the name the profession gave to the disease mattered very little, provided that they understood each other mutually, and they need not trouble themselves about medical men and surgeons. He ventured to say that their presence there placed them under the obligation of adopting the proposition he had made. By allowing a section for diseases of the teeth, the Congress had paid its tribute to the labour of those who with so much energy, talent, and science, had brought their specialty into its proper place, and amongst whom, without hurting the feelings of any one present or absent, they might well agree to assign the first place to Mr. John Tomes. (Applause.) The Committee had shown that it considered Dentistry as a branch of medical science and as such they had no right to borrow a name from the surgical terminology, which did not express exactly what was usually understood by it. Having regard to all these considerations he proposed the following as a resolution, if it could be submitted:—"As caries of the teeth is a process totally different from caries of the bones, this meeting is of opinion that the term 'caries of the teeth' should be replaced by another" for which he suggested the Greek word "*chaunos*," signifying softening.

The PRESIDENT intimated that the International Medical Congress, which he regarded rather as a deliberative assembly than as an assembly having the function of determining any great original questions, could not entertain the resolution in the form in which Dr. Dentz had put it before the section. At the same time they were very much indebted to him for drawing attention to the subject, and he had no doubt the idea so thrown down would fructify in the minds of many.

Dr. ATKINSON (of New York) said they must first know whether there was a difference in the process other than a difference of degree, and they had better take care not to hastily decide what the nomenclature should be before comprehending one aspect of the process; that necrosis by caries was essentially different in the soft and hard parts he seriously doubted. He believed them to be wholly dependent upon molecular change. That was so little understood and so little studied as not to entitle them to establish a nomenclature that should bind them. As it was suggested that they should lay aside caries, he suggested the word decadence from "*decado*"—"I fall down." He doubted where they would get a better word in English, or the classics, to signify the process of decay than that.

Dr. DENTZ did not wish what he had submitted to give a signification to the word. Dr. Atkinson had very justly remarked that they did not yet know precisely what caries was, but he would ask did they know precisely what was inflammation? At the time Virchow brought out his theory they thought they knew it, but Cohnheim some years later threw down the monument from which inflammation had derived its name. But his contention was that this name "caries" given to disease of the teeth signified altogether another disease. He thought they ought not to keep a name which surgeons formerly gave to caries of the teeth, not knowing the exact process which existed. He did not care what name they gave it, but they ought to substitute some name for that of "caries."

Dr. ATKINSON said that Dr. Dentz had not taken the cue of his remarks, which was this—not to make distinctions that they could not carry out in their own imaginations, to the satisfaction of their own minds—and thus lay themselves open to the query of all who

asked how they arrived at their conclusion. This question was laid deeply in the laws of organisation, and whether it was proper to say that retrograde metamorphosis of molecular change should be denominated as John Hunter denominated it years ago was the question to settle. Hunter said that retrograde metamorphosis or returning of the elemental tissues to their embryonic condition was inflammation. He (Dr. Atkinson) could give no better definition to the term inflammation to-day than that of—"in" and "flammatio"—a sort of burning, a sort of oxidation—not oxigation. He was one with Dr. Dentz in his wish to rectify as fast as and as far as was within their power the nomenclature that had crippled them so that they had to be grey headed before they were entitled to say that they understood any of those processes with which they dealt.

MODELS IN TYPE METAL.

Mr. HUNT exhibited a collection of models which he had had in preparation during the session. He observed that all who had had much experience in the construction of artificial teeth would acknowledge the value of plaster in obtaining a good model from the mouth. It was found, however, that plaster models were usually unable to bear the screw pressure in working celluloid, and generally speaking was exposed to all the "thousand ills" that plaster models are heirs to. Being struck by the simplicity of the process used by the electro-stereotypers, Mr. Hunt made a number of experiments with type metal, and the result of his experiments was shown in the collection he now produced. He found that he was able to obtain an extremely accurate model of the mouth, which would stand any pressure he wished in the construction of celluloid plates.

CONTOUR RESTORATION OF THE SUPERIOR CENTRAL INCISORS.

Dr. PARMLY BROWN (of Chicago) then read a paper on the above subject, illustrating various points by drawings and plaster models of gold fillings in the mouth, and unnatural teeth that had been extracted. The writer proposed to deal with one of the most uncommon diseases that occurred to the human teeth and one less successfully treated than any other form of caries. The operation of restoration was not generally performed in an artistic and scientific and durable manner. Statistics taken by two Dentists extending over ten years in their daily practice in localities remote from each other, accounts of which appeared in the Dental journals some years ago, harmonised in one particular—that the upper central incisors were more liable to decay than any other teeth. The observations of Dr. Brown led him to believe the correctness of those statistics. The three principal causes of failure in filling of the teeth were, first not knowing how to do it, secondly, not doing it thoroughly if knowing how, and thirdly, not using good gold and proper appliances. The great secret of success in the operation of gold filling was, a great number of light and rapid blows in harmony with tooth structure and the living organism to be operated upon. He had proved that 100,000 blows could be struck on a gold filling in a single day by a hand mallet. Contour restoration had for more than fifteen years been peculiarly attractive to him. In twelve years he had effected upwards of 3000 fillings with the gold running to the

cutting edge of the teeth, and a careful examination of the causes of the failures he had experienced only proved that the principle was a success, and that the failures were due to reasons which could be as a rule obviated—improper anchorage, improper condensation of gold, imperfect margins, and so forth. Dr. Brown then exhibited a number of diagrams showing the various difficulties he had met with and the points of detail to which attention should be paid in gold filling, such as the accurate bevils, the thorough anchorages, the solid condensation of gold, beautiful curves, &c. He concluded by combating the opinion that gold work was hideous; it was quite as artistic as any kind of work in jewellery, and moreover the eye became accustomed to anything that was well and cleverly done and which served a useful purpose.

Dr. ATKINSON made a few remarks with a view to encourage the younger members of the profession not to be disheartened by the failures they must infallibly meet with in the course of their practice. If a student could not accomplish a thing when alone and trying simply to follow instructions, let him go to some one and ask him kindly and fraternally to help him; the one great requisite and essential quality of a Dentist was manipulative ability.

Mr. HUTCHINSON inquired of Dr. Brown whether he had experimented with porcelain crowns in the place of gold fillings. He also asked whether that gentleman had ever had any experience of the fixation of some other material than gold in such a position without the usual devitalization of the pulp.

Dr. BROWN said it would take a lecture 'about ten hours long' to describe all the cases he had met which required the fixing of enamel plates and the inserting of pivot teeth on live and dead roots. Sometimes they set in plates of enamel years after they had put the crowns on. They trimmed out entirely up to the enamel. It would be a long task to describe the different processes, but a large number of them would be found in the paper, an abstract of which he had read.

In reply to another query, Dr. BROWN said he had tried a combination of gold and platinum in a few cases where it would be out of sight, but he had not yet used it in cases where it was in sight, as he did not think the work would be acceptable at the present day to the public.

Mr. STOCKEN said there was a subject which he had hoped would be treated by some one better able than himself to introduce it, viz. the conservative treatment of teeth. It seemed to him they were losing to a very great extent by not adopting constitutional remedies in many cases where if they were used the teeth would be preserved. There were certain remedies that would allay irritation of the pulp which might result in congestion or inflammation; in the same way in inflammation of the peridental membrane they might, by constitutional remedies, check the mischief in its earliest stage and thus prevent the suppurative process, and even in some cases where it had already commenced they might bring about a reaction into a healthy condition of things. Therefore, it was a matter that they ought to consider whether in the future education of their younger friends it would not be desirable to give them lectures and make it compulsory that they should be taught pharmacology—that they should have some knowledge of the remedies which are suitable in certain diseases of the mouth and teeth. It was anomalous that they should be able to diagnose certain pathological conditions of the mouth and teeth, and yet, as was the case in many instances, be

quite ignorant of the remedies used to restore them to a healthy condition.

The PRESIDENT, interrupting, intimated that the discussion of a new and wide subject such as this, without previous notice, could hardly be allowed.

Mr. HUTCHINSON, in continuing the criticism upon Dr. Brown's paper, referred to the discussion going on in recent numbers of the 'Cosmos,' from which the general opinion seemed to be opposed to the principle of making such very large gold stoppings in front teeth. Dr. Brown had advised them in his paper to imitate nature wherever possible; yet by the diagrams of teeth fillings which he had effected he had shown that his practice was not always in accordance with this principle. Using porcelain crowns in place of gold would be more in accordance with the principle of "imitating nature." Eminent chemists were now striving and had succeeded in producing very efficient phosphate stoppings, which simulated most cleverly the natural colour of the teeth, and did not require very frequent replacing. He thought also that in cases both of live and dead nerves it was, as a general rule, best to pivot.

Dr. ROSENTHAL who spoke in French, also commented on the paper.

Dr. BROWN, in reply, said that twenty years ago when he made the first artificial bone filling in New York, he was of the same opinion as Mr. Hutchinson was now, and he thought phosphate was going to supersede gold, but to advocate it at this time of day was being twenty years behind the age. He then proceeded to reply in detail to the remarks of the various speakers.

Mr. WALTER COFFIN, who then made a few remarks, seemed to express the feelings of the section in advising Dr. Brown to discuss the desirability of gold fillings with somewhat less dogmatism.

The discussion being brought to a close, and there being no further business before the Section,

The PRESIDENT delivered his closing address (which we published in a previous issue), and the proceedings of the Section terminated.

Dental News.

ON PASSING EVENTS.

By "PHOSPHOR."

THE SECRET OF PROFESSIONAL SUCCESS.

A QUESTION has frequently been asked and will be as frequently repeated while one generation succeeds another. It is this: What constitutes professional success, and what is it that enables one man to rise pre-eminently above his compeers? I am speaking now in a worldly point of view,

without regard to the fame that a man may obtain among his professional brethren ; What is it that gives one wealth, crowds of patients, and enduring fame, while another remains in comparative obscurity ? The answer that it is a man's superior ability that causes him to be so much in request will not hold good, for there are many very learned men who remain unnoticed all their lives, and there are many third-rate intellects that are ever in demand. A man's written opinions will frequently give him a status beyond his own professional circle, but his success is more in the study than the consulting-room or the surgery. Looking at our own profession and the practice of medicine, I feel inclined to doubt whether the most able men are, in the common acceptation of the term, the most fortunate. Mere money making is not associated with the most learned of our body, and it is easy to understand the reason why. Trusting to our perfect training and our thorough competency to practise our profession, we quietly wait until chance opportunity gives us a name and a practice ; such a chance may never come to us. Others less scrupulous and generally less informed take every opportunity to push their fortunes and obtain for themselves income and fame. To be thoroughly qualified must be the foundation upon which all who desire to make a lasting connection must rest, but a great deal more is needed before a young practitioner can consider himself in the direct road to fortune. The student, active and intelligent in his studies, painstaking and industrious in his hospital work, and thoroughly well posted in modern practice, has still a very great deal to learn. If he thinks that he can carry his hospital manners into private practice, he will find himself very much mistaken. The cultivation of a quiet, gentlemanly bearing, the study how to make himself agreeable and affable, never losing his own individuality by siding with the opinions of his patients, but listening to what they have to say without departing from his own convictions. Firmly following that which is right, but not obstinately upholding his views before his patients, he will thus do more to gather around him friends and admirers than he could ever accomplish by showing his

learning or exhibiting his cleverness. Possessed of these qualities, and knowing what he is about, a fair opening will usually bring its satisfactory results. The patient must come to him with a belief in his skill and faith in his integrity. Unfavorable allusions to the practices of others will do no lasting good, for it is easier to find fault than to praise. Do not forget that the good things we do are known and seen by ourselves, our worst are seen by others. The defects in a man's own work are almost sure to escape his own notice. Remember also that the only true bond that unites the patient with his adviser is the mutual confidence that should ever exist in each other's integrity, and the firm belief, as I have said before, that no solid advantages can accrue either on the one side or the other where that confidence is shaken.

CONVERSAZIONE AT THE NATIONAL DENTAL HOSPITAL.

ON Thursday, October 14th, a conversazione was given by the Student's Society of the National Dental Hospital, in the rooms of the institution, Great Portland Street. It was eminently a social gathering, and as the company consisted of the officers and the students and their friends, most of whom were known to one another, a very enjoyable evening was passed. Three large rooms had been placed by the Medical Committee at the disposal of the Society, and the members spared themselves no trouble in fitting them up for the evening. Several pictures in water and oil, and pencil drawings were hung upon the walls, much to their improvement in appearance. One room was devoted to refreshments and the other two to various appliances and specimens of interest to the Dental mind. A table was devoted to microscopy, many of the instruments being kindly lent by Mr. Collins. Sections of teeth and developing tooth germs

were placed upon the stages for inspection. On another table Mr. Walter Coffin exhibited a large collection of cases of Dental irregularities, and explained his method of dealing with them, with special reference to that type known as the contracted arch, in which by means of a split vulcanite plate and a spring made of pianoforte wire, the teeth on either side are forced out to the desired position. Models of the cases both before and after treatment were shown. There were two large stereoscopes lent by Dr. Viseck, and also a case of old-fashioned extracting instruments, neither ornamental nor useful, suggesting that if our fathers removed buried stumps with them that they possessed considerably greater dexterity than we can boast of at the present day. On a side table were arranged some models, including one of the mouth of Julia Pastrana, some odontomes, fossil teeth, &c. Another part of the room was devoted to the Dental Manufacturing Company, who exhibited some recent specimens of ingenuity in the shape of a rubber dam clamp by Dr. Parmley Brown, which, though not so simple as the kind ordinarily in use, might prove very useful in some cases; also impression tray for taking models for pivot teeth, &c. In another room Messrs Ash showed a large variety of instruments and appliances, among which were a Bonwill mallet and engine, an electric mallet in working, and a mouth mirror so constructed that if the glass becomes scratched or injured it can be readily removed from the frame and another put in its place. Mr. Martindale kindly sent some of the new antiseptic agents, resorcin, and chinolin tartrate, and also an anæsthetic plugging for sensitive teeth containing collodion, morphia, and thymol, which should be inserted into the cavity on wool in the same manner as gum mastic is often used.

Mr. Tribe, the Lecturer on Metallurgy, exhibited a number of interesting electrographs obtained by the "electro-chemical method," showing the course of electricity in passing into or from different electrolytic media. The results of Mr. Tribe's investigations, illustrated, were: first, that electricity passes without alteration of direction from one electrolytic medium to another differing from it in con-

ductivity, when the course is perpendicular to the surfaces of contact; secondly, electricity, on passing obliquely from one medium to another, suffers refraction, and in the same plane towards the perpendicular, when from a better to a worse conductor, and from the perpendicular when from a worse to a better conductor; thirdly, the refraction increases or decreases as the media recede from or approach one another in conductivity; and fourthly, the refraction increases as the incidence increases. These results exhibit a close likeness between the laws of light and electric refraction.

The chief attraction of the evening, however, centred around the piano, and although the Council of the Society had been disappointed in securing professional aid, the amateur talent displayed was very much appreciated, some of the singing especially being very good. Soon after eleven the gathering was broken up, and from the numbers who attended and the interest shown in all the proceedings it cannot but be pronounced to have been a most successful *soirée*.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

THE first meeting of the session will take place at the Dental Hospital, Leicester Square, on Monday the 7th inst. The paper of the evening will be read by Dr. B. W. Richardson, F.R.S., on "Dental Caries in relation to Food and Feeding."

VACANCY.

DENTAL HOSPITAL OF LONDON.—Assistant Dental Surgeon. Applications before November 14th.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

Post-office Orders to be made payable at the Regent Street Office, to J. and A. Churchill, 11, New Burlington Street, W. A single number sent on receipt of seven (penny) stamps.

ANSWERS TO CORRESPONDENTS.

H. J. KLUHL.—The subject of your letter was anticipated by one which appeared in our last issue. Any further reference to it is not, we think, advisable just at present.

“MINSTER.”—There is no law on the subject; it is entirely a matter of conscience and right feeling. We respect your scruples, and think you would do well to abstain.

The Editor being absent from town begs the kind indulgence of several other correspondents and contributors.

Communications have been received from Messrs. T. Slack (Rotherham), Edwin Saunders (London), Geo. Lyddon (Reading), F. Canton (London), F. H. Balkwill (Plymouth), W. B. Macleod (Edinburgh), H. J. Klühl (London), the Hon. Sec. of the British Dental Association, W. Lang (Glasgow), J. A. Fothergill (Philadelphia), F. P. Parson (Glasgow), “Minster,” “An Irish Student,” “A. M. D.,” &c.

BOOKS AND PAPERS RECEIVED.

‘Poore on the Physical Examination of the Mouth and Throat.’ ‘New York Medical Record.’ ‘Ohio State Journal of Dental Science.’ ‘L’Odontologie.’ ‘Gazette Odontologique.’ ‘El Progres Dental de la Habana.’ ‘Johnston’s Dental Miscellany.’ ‘Lancet.’ ‘Medical Times and Gazette.’ ‘British Medical Journal.’ ‘Pharmaceutical Journal.’ ‘Wakefield and West Riding Herald,’ Oct. 22nd, &c.

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

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INAUGURAL ADDRESS,

DELIVERED AT THE OPENING MEETING OF THE DENTAL
STUDENTS' ASSOCIATION OF GLASGOW, ON
OCTOBER 19TH, 1881.

By W. S. WOODBURN, L.D.S. Glasg.,
President of the Association.

GENTLEMEN,—When I consented to address a few words to you in inauguration of a new session, I little thought of the difficulty I should have in choosing a subject that would be at the same time instructive and interesting; nor have I yet succeeded in determining upon a definite train of thought, but I trust that a few rambling thoughts may serve to inaugurate a session which promises to be of special interest and importance.

To set out with advice to Dental students might be to incur the indignation of not a few present, as our Society may equally claim to be a society of licentiates in Dental surgery. Nevertheless, there is no period in our professional career when we can cease to be students and be successful. Fledged or unfledged, bond or free, we must remain students, until our emancipation, either by a well-earned reward for our assiduous labours, or until we are called away to that land where our labours have an end.

I would in the first place address myself particularly to those who are setting out on their career in search of Dental knowledge. You have already made yourselves conversant with the curriculum required before you can present yourselves before the dreaded sifters of your professional acquirements and mechanical ability. By entering upon your studies you have voluntarily accepted the terms laid down

by Act of Parliament, and to be conversant with each and all of the subjects is not only your duty to yourselves but is required of you, so that the profession may be elevated, and those who apply to you for aid may be skilfully treated. I would, therefore, counsel you to set out with a full determination to be master of all the subjects, however uncongenial, dry, or to your mind unnecessary, they may appear. You have a four or five years' race to run before you reach the desired goal; but persevere, for if you wish to acquire proficiency in your profession you must give yourselves to study. Knowledge is not to be gained by wishing, nor acquired by dignity and wealth. Application is necessary both for prince and peasant. Many in elevated situations are very desirous of the honour, but averse to the labour, of intellectual attainments.

If you wish to enjoy the sweets you must encounter the difficulties of acquisition. Industry and perseverance, patience and hope, these carry a man on, these are the wings upon which he can both fly and soar, and the lives of all great and good men teach us that it is to these qualities that they attribute all their success. Therefore halt not, persevere, and, as one class after another has to be encountered, go armed with the conviction that you have done your best. Be conscientious, methodical, and assiduous in your preparation for your classes, remembering that the lecture may be but a text or nucleus of the matter to be enlarged upon in solitude. I believe it is almost impossible to exhaust a subject in lectures, or that hearing it ventilated in a classroom can make a student perfect in it. Lectures are more calculated to assist him in his reading and study, to explain and make more lucid that which standard works contain, the human voice being more powerful in conveying ideas and impressions than the inarticulate words of a printed book. By carelessness, inattention, and irregularity, you may forfeit the very matter that will be of most service to you in your final ordeal, and lose that which might be most beneficial in practice.

It is not only necessary that you should know the process of development of the teeth, or to be able to diagnose any

disease. To be fully conversant with the theoretical without the ability to successfully treat, or dextrously manipulate, would be of no more good to you than for a hungry man to know where there was abundance without the means of procuring it. Therefore, let the time you have to serve in the laboratory and your practice in the hospitals be fully appreciated, and have much weight in your preparations.

My experience of some young men in the workroom has been that unless they get dentures to make they would sit with their arms akimbo, and listlessly look into vacancy, until their daily imprisonment had expired, utterly regardless of the fact that every time a tool or instrument is handled on any substance and for any purpose it is educating the hand for higher practice. I would have you remember that good old proverb—"The hand of the diligent maketh rich." It is to laziness that is attributed the cause of more failures in life than to incapacity or want of opportunity. There are multitudes who want neither the ability to do nor the occasion to succeed, who yet lose the prize in life's race simply through sheer indolence and want of attention. My advice to you would be to associate yourselves with those who are themselves energetic; the idler about you tempts you in a thousand ways, and as his example falls in with the easy side of your nature you are constantly in danger of giving way, and one wasted hour often leads to a lost and idle day.

But here, too, I would warn you against the arrogant and flattering idea that you have arrived at perfection in any way, and against being content with your achievements.

You may have taken a thousand models, you may have backed as many teeth; in fact, you may have made hundreds of dentures and performed scores of extractions, but in some way or other you may not have reached the acme of your capabilities. "Repetition courts perfection."

Now, a few words to students collectively—to those who are entering upon study, and to those who have passed the "winter of their discontent." Our profession is no sinecure. To one fully engaged in practice I cannot imagine a more worrying, more fatiguing, and complicated calling. The

diversity of our work requires us to be ever ready to draw from a well-stored reflective mind that which we have found to be beneficial in analogous cases, and to be ready, with a dextrous hand, to obey our thoughts with precision. There are rules or laws laid down for the guidance of students, which often are the results of long and careful practice, but to be cramped and fettered to the experience of men, however successful, is to be no more than a machine, or a living, breathing, imitating automaton, wound up for the purpose, it may be, in many cases, for perpetuating errors, and in some cases injuring your patients rather than doing them service. You may have read and been taught to perform a surgical operation in such and such a manner when certain symptoms are apparent, you may have learned to attain some mechanical result in an orthodox manner, but shall you lose your individuality and insult your intellectual powers by continuing unreflectingly in a groove made by men, however eminent in their profession? And why eminent? because they themselves have been original, or by research or observation have improved upon hackneyed, recognised, and self-satisfied methods for curing or procuring certain results. At the same time, let much caution be observed when you intend to deviate from the trodden path of venerable experience. Never for a moment forget that you are in search of purer truths, higher principles, and more substantial results. What is the difference between a successful man and a man who remains *in statu quo*? The latter is like a mile-stone indicating the distance to a given place, but never itself an inch the nearer; the former like the man who takes observation and presses onward. The one is ever stationary, satisfied with what he has already attained, but the successful student or successful practitioner never rests on his oars, but has an unquenchable thirst for higher attainment.

It is no uncommon thing to see the man of talent surpassed by the man of inferior intellectual powers, and why? For no other reason than that the one grudgingly devotes but half his time to his studies, while the other puts forth his whole energy, and applies himself to the object of his life. Reward

is rendered according to diligence. There is some truth in Æsop's old fable of Jupiter and the waggoner, whose wheel had stuck fast in the mud. The waggoner shouted to Jupiter for help, but the king of the gods, looking down from his Olympian throne, bade the indolent clown cease his supplication and put his shoulder to the wheel. Success depends upon putting our shoulder to the wheel.

Gentlemen, your desire is, I am sure, that you should succeed, and my desire is that you should all be successful; but without prosecuting our studies, and faithfully searching for more light, we can be no better than an elaborate title to a badly-written book—a fraud, an imposition. There is not only satisfaction derived from voluntary prosecution, but there is the rich, well-earned reward of a well-feathered nest, for talent cannot be hidden nor perseverance go unrewarded.

I would now, in a few words, endeavour to point out some of the hidden treasures in our science which are yet undiscovered, which, though they have engaged the attention of scientists, are still in the womb of futurity. Here the finger pointing to fame and fortune may be even now before you, indicating problems which will call forth all your perseverance, skill, and energy to unravel.

The successful investigator into Dental etiology has not only a fortune in store for him, but a blessing to confer upon suffering humanity. And even where we may not have insight enough to prevent or remove the cause of disease, there is still a handsome reward held out to him who by accident or by patient plodding shall arrive at a substance that will make good the ravages of disease in the dental organs in all their characteristics of texture, colour, and durability. A thousand pounds for a perfect white stopping is surely a bait good enough to set many of you experimenting upon silicates, phosphates, carbonates, conglomerates, &c. Our enterprising friend of Warrington, who has for so many years prosecuted this study, has, you may have noticed, offered this large sum to the discoverer of this desideratum. But, although the bait may be attractive, there is a still deeper problem to solve, viz. the prevention

of disease inherent to the masticating organs, and although this discovery might lead to the ruin of our most lawful calling, all of us, I am sure, would be willing to look out for happier hunting grounds. To know the cause which produces a certain result is to be master of the situation, and the common adage that "Prevention is better than cure" will, I am sure, be readily endorsed by us all; therefore dip deeper than even a good stopping, so that the "coming race" may have perfect dentures.

Another desideratum is to procure a vulcanite that would in translucency and colour resemble the gum. Another is a perfectly safe anæsthetic that could be administered with impunity to Brown, Jones, and Robinson. I should rather say a reliable local anæsthetic. These and many other discoveries are still to be solved by the ingenuity and plodding of the earnest student.

We may now have said enough on this point, and will now turn our thoughts upon the objects of this Society. I cannot commend too highly the principal object for which this Society was founded, viz. the reading of papers on Dental subjects, and the discussing of them by the members for their mutual advancement; and when I remind you of the work done in this direction last session, you will agree with me, I am sure, in saying that we could not have desired greater success.

The papers on replantation and transplantation, on alveolar abscess, and nitrous oxide, with the amount of interest taken in these subjects, must have been not only gratifying to the gentlemen who read them, but full of instruction to those who had the good fortune to listen and participate in the discussions. There were also a considerable number of cases in practice brought forward and ventilated, which either confirmed the mode of treatment or convinced the member of his error, and altogether conferred a lasting benefit upon all present. This portion of our meetings, the casual communications, have been largely taken advantage of.

I have already hinted that this session promises to be in no way behind, as we have already on hand sufficient to

make the inquiring student rejoice. But, however high the educational benefits may stand in the estimation of many, I would not have you forget that to encourage a fraternal spirit where there was so lately a want of sympathy and jealousy is, or should be, the anchor that will keep us firmly bound to this Society. Where there is a friendly spirit pervading there will be free interchange of thought, there will be no desire to keep to ourselves anything that we find beneficial in practice. Then, above all, let this feeling be fostered, and it will not only bind us together, but will give a zest and sweeten all our intercourse. But, gentlemen, this laudable principle is not to be confined to these four walls. Although there is no code of ethics that I am aware of to guide us in the discharge of our duties one to another in our professional intercourse, other than that which should ever stand highest in our estimation, viz. that taught us in the Divine command to love our neighbour, and the voice of our conscience approving or disapproving of our acts and words towards each other—although we have no formula, no hard-and-fast line as to what we should do and say, we shall still find the peace and joy of the upright and honorable man in doing as we would be done by.

In many ways we can compromise our fellow-practitioner without slandering him openly. A look, a gesture, may convey as strong an estimation of what we think of him as a man and a compeer, or the estimate we put upon his work, as a volume of words could portray. The time was when we could condemn with impunity the unprincipled pretensions of the charlatan, but now that our relationship is altered, where we cannot approve or say a word of praise let there be silence. Patients are not generally ignorant, undiscerning nonentities, incapable of forming a correct opinion of the motive that would prompt us to detract from the work of another. They are invariably shrewd enough to discern that it is for no other purpose than to endeavour to exalt ourselves and our capabilities in their estimation. It is not for us to weigh each other in the balance; the public must determine for themselves.

What student is there who would not, if it were possible,

convey to the mind of his fellow-student all that he possessed of knowledge himself, so that he might be equally successful in attaining honours? And why should this sympathy be extinguished in the more serious prosecution of business life? Why should jealousy be engendered, sympathy ignored, and brotherly feeling lost sight of? Is it because the game is changed, the circumstances altered, and the bond less binding? Is it because there is now a race for precedence and a more exalted position in the eyes of the world.

Emulation is a good thing, but where it sacrifices the principle of the student it must be looked upon as a danger and an evil.

A reciprocal acknowledgment of our duties can be much better observed and valued by obeying the dictates of our own conscience than by studying an elaborate code on our professional relationships. Whether student or practitioner, let us endeavour to build all our actions upon the sure foundation of honour, integrity, and perseverance, and then the inward monitor will assure us that we have done our duty.

THE INFLUENCE OF CIVILISATION ON THE TEETH.*

By J. O. BUTCHER.

MR. PRESIDENT AND GENTLEMEN,—It is now generally admitted by those competent to form an opinion that the influence of civilisation is decidedly injurious to the development and preservation of the teeth, and results in the production of a larger proportion of disease than has been found to exist among savage races. If studied in all its aspects it would detain us beyond the time at our disposal this evening.

* Read before the Students' Society of the Dental Hospital of London on October 10th, 1881.

There is probably little doubt that the teeth are in some manner affected by such agencies as climate, including temperature and soil, although decidedly not so much as by the condition of the general health and different articles of diet. It is to these latter and more important agents that I desire to direct attention ; or, in other words, I wish to consider the effect of civilised habits of living in so far as they influence the development of the dental tissues and result in disease of individual teeth. I do not use the term "civilised habits," as opposed to savage customs, so much as to distinguish primitive and natural, that is, domesticated manners of living, from the refinement and conventionalities found amongst cultured peoples. For in many respects, and especially in regard to his food, man without doubt lives unnaturally, or, to use a better expression, artificially ; nor does this apply only to his food, since by the aid of science and a certain ability of adapting himself to circumstances, which belongs to him alone, he is enabled to overcome or to tolerate all the difficulties of existence under climates in which to dwell naturally he must be specially constituted.

Therefore, as he progresses in civilisation and departs further from these normal conditions of life, so these difficulties increase, to counteract which he is compelled to rely on his own skill, together with the aid of science.

With animals circumstances are altogether different, for we find one species capable of existing and thriving under climatic conditions which to others entail such degeneration as ultimately ends in total disappearance, if not immediate death. But we must not lose sight of the fact that with this higher and more refined condition of life come also more skilled and successful means of counteracting or remedying the injurious tendencies.

In order to arrive at a correct estimate of the full effect of an advanced state of cultivation and civilisation on the teeth it will be necessary to notice briefly the condition of the dental arrangement as it is found amongst men living in the primitive condition to which I have referred ; then by comparing these observations with the state of the teeth that we see every day there will be little difficulty in distinguishing

the marked difference both as to development and general health; and still less in many instances to show the causes of such distinct degeneration. In doing this, although I cannot claim originality, I have endeavoured to gather some reliable facts from the records of those who have applied themselves to the study of the subject.

To take then first some races that are remarkable for the beauty and strength of the teeth, Arabs and Negroes may be mentioned, while the Esquimaux are certainly not far behind them; of these peoples it is noteworthy that the latter, although they possess such finely developed teeth and maxillæ, are physically a stunted race. No doubt this may in some measure be accounted for by the climate of the territory which they inhabit; therefore, as the teeth do not suffer from the same cause, we are entitled to argue that the superior development and regularity is due to the influence which their plain food exerts, which is frequently taken so nearly raw that their name is a result of the prevalence of the custom.

Then, again, the Negroes have remarkably fine teeth, and it has been stated that their preservation is due to the fact that they do not take hot drinks, or anything at a much higher temperature than blood heat. At the same time this is not to be allowed as exerting any material influence on the teeth, for the Arabs drink their coffee at a temperature close to the boiling point, their teeth being, as before mentioned, distinguished not less for strength and soundness than for beauty. And similar instances may be quoted; for example, some of the East African tribes eat their chief vegetable food, a kind of porridge, while so hot that it would sorely try an ordinary man.

Among the American races of the north and south, perhaps those of the north have on the whole the better teeth, and of these the tribes dwelling in the north-west portions are well provided, the teeth showing good structure and offering successful resistance to any approach of caries. One extraordinary appearance that they present, especially among tribes dwelling near the Columbia river, is a well-worn surface; this, so far as the teeth themselves are con-

cerned, has resulted only in a deposit of secondary dentine in the pulp chamber. Some travellers have described the teeth as being worn nearly to the margin of the gum, and assign the following cause:—Living near large rivers the principal food is fish, chiefly salmon, which when eaten wears away the grinding surface of the teeth, owing to its being impregnated with particles of sand which are blown into it as it is hung to dry. In this respect some of the tribes living inland, or rather in the plains, have better teeth, such examples being very rare among them.

With the races in the northern and central portions of South America a curious fact may be observed, which also tends to strengthen the opinion that cooked, or rather prepared, foods are hurtful to the teeth. As a rule, little disease is found, and the teeth are of good structure, with the notable exception of those found among the people that have been influenced in their customs and modes of living by the habits of their Portuguese or Spanish conquerors. And here it may be noticed that, with all the races that have been mentioned, although any two of them may exist on different kinds of foods, one principally vegetable and another on meat, the teeth do not appear to be materially affected, or if influenced at all, certainly not injuriously. These are general observations to which, doubtless, it would be easy to find exceptions, for we know that a vegetable diet is sometimes disposed to create an acid condition of the saliva, which has frequently a bad effect on the teeth.

With regard to the inhabitants of India, where rice is the staple food, caries is rather more frequently met with, especially in the southern districts. Whether the custom of living largely on rice is solely responsible for this is to be doubted, and more so when it is observed that the people eat a quantity of fruit, and are also given to indulgence in sweets in a variety of preparations. Among the northern races the condition of the teeth is on the whole healthier, so that it is not unreasonable to attribute the difference to the non-existence of such a plentiful supply of rich fruits as are produced in the more temperate districts.

In the South of Africa comparatively little disease of the

teeth has been found, which may also be said of the northern tribes, and notably of those dwelling in the western districts; but as regards the central portions of the continent the teeth, and in fact the general constitution, seem to suffer considerably, probably owing to the marshy nature of the country producing unhealthy predispositions.

As a rule caries among the Chinese is seen to be more frequent, and they also lack the superior development noticed among some of the races just mentioned. These facts become significant when we reflect that the Chinese have for ages been living, as regards their domestic life, in an equally advanced condition as some European nations.

Thus, taking a cursory glance at some races living under very diverse conditions, as regards habits and food, it is seen that those living in a simple and in some cases a crude manner are possessed of very fine teeth, while, to speak broadly, as a higher state of civilisation is reached so the teeth are observed to deteriorate in development, and consequently in the power to resist the attacks of disease; so much so that now among western Europeans it is a rarity to find an absence of caries together with powerful development, whilst in uncultivated races this condition is almost universal. To attribute this merely to the effects of different diets and their preparations would be decidedly wrong; but that they have the greatest influence is, on the other hand, equally certain, it requiring little thought in order to demonstrate the non-beneficial and destructive nature of some prepared foods. Most savage tribes have some method of preparing or cooking their food, although "cooking" as applied to them does not mean what it does to us now; and the custom has continued and advanced, I will not say improved, until with us hardly one article is taken that is not first cooked or prepared; so that we look upon the custom of eating raw flesh as an accompaniment of barbarism, which undoubtedly it is, though when we regard it with reference to its influence on the teeth we must admit that within certain limits the less food is prepared the better the result. Among savages the roughest methods of cooking are practised—broiling the flesh on burning logs, or toasting it over the fire, and this perhaps directly the animal has been

killed, even while the blood is yet warm. Under such circumstances no doubt it would try the strength of the teeth and jaws, but at the same time would improve their future development, and by keeping them in active use strengthen their attachments.

In addition to this influence Mr. Coleman, in his recently published work, attributes a large amount of evil results to the habitual and conventional use of the knife and fork, which to some extent supplies the office of some of the teeth, particularly the incisors. With this, place the theory of biologists, that things which are little used or needed soon degenerate, until in some cases they are lost altogether, and we are enabled to account for a large number of the weak, malformed, and badly-developed incisors that are so frequently seen. These same influences produce disease also by resulting in insufficiently developed maxillæ, with a contracted arch, and consequently a crowding of the teeth, a predisposing cause of the spread of caries. Another comparison which supports, and almost confirms, the evil influence of soft prepared foods, is that made between human teeth and the teeth of animals. Some animals, especially among the monkey tribes, have teeth so similar in shape and position that we might expect, and not unreasonably, if the tendency to disease were wholly the result consequent on these similarities of form, to find a large proportion of disorder. As a fact, this is not so, there being very little if any caries, and scarcely any signs of inferior development. Therefore we may attribute the causes of the difference to the influence of food and climate. An animal inhabits a climate for which it is naturally constituted, and where nature supplies all its wants, living on foods to suit which its teeth are specially modified and adapted. With man many of these circumstances are altogether disregarded, and we find him living under all possible conditions, both as to food and habits, which must affect his teeth through the influence of the general constitution.

The effect of soft foods on the teeth of animals has been strikingly demonstrated by watching two dogs, one being allowed to live and feed itself in obedience to its instincts,

the other being fed and kept artificially. The results are well known. With the latter there was a marked appearance of caries, while in the former case it is seen that among animals so living the disease is conspicuous by its absence.

Bread being so largely and universally used may well attract notice, and as to its influence on the teeth it must be admitted that, not only is it not beneficial, as it might be, but frequently it contains an ingredient directly injurious. Some writer has observed that the art of bread-making "has done more than any other to civilise mankind." Whether this be so or not, among savages it is hardly known, even in its rudest forms; the first approach to its practice is found in some places, as in the formation of hard cakes, made probably from plain bruised meal moistened with water, and consequently requiring an amount of force to crush them. Later on many improvements have been made and skill obtained in the art, as we pass from plain unleavened bread to that in which yeast is used, until we arrive at the finely-textured, delicately prepared, although not necessarily better, bread of our own time. Of course this is going back a long way, but the observance of such facts, coupled with the good condition of the teeth found in people with such simple customs, leads to the conclusion that bread so highly prepared, and as regards the teeth too much so, is decidedly injurious. With respect to drinks, their influence on the whole is not so destructive (with the exception of such as are capable of forming with portions of food an acid fermentation), probably owing to their being more quickly passed through the mouth and an absence of any tendency to remain between crowded teeth or in carious cavities.

Among savage tribes water was the usual drink when they were first discovered; for example, the Australians and the North-American Indians, who did not, and probably never had, used fermented drinks. But in most countries, especially those where much grain was cultivated, fermentation must have been discovered by accident if not by intent. Thus, beer prepared from barley was used by the ancient Egyptians, and a variety of other kinds might be mentioned, as

the rye beer of the Russians, and the millet beer used by some African tribes. No doubt fermented drinks are more injurious than plain or non-alcoholic, but if we may judge from comparison probably neither are very destructive to the teeth unless taken in large quantities.

Tea, first used as a stimulating drug, may be pronounced injurious, if we may attribute any of the causes of Dental disease among the Chinese to its habitual use; but it is difficult to censure any one article when the teeth are exposed to so many adverse influences. At the same time, it is justifiable to assign some of the causes of the evil to an article that is taken so largely.

Some foods are distinctly injurious to the teeth, sometimes from undue preparation, as has been shown, at others from adulteration, and still, again, because they frequently contain destructive ingredients.

Thus, as a result of experiments made some time back by Mr. Westcott, and which have since in the main been corroborated, it is seen that—

1. All the mineral as well as the vegetable acids act promptly on the teeth.

2. The salts whose acids have a greater affinity for lime than for their own bases also have a marked action.

3. Vegetable substances produce no effect until they are allowed to ferment.

4. Animal substances act very slowly and then only when in a state of advanced putrefaction.

Dr. Magitôt also made a series of observations on teeth immersed in weak solutions of some acids, sugar, albumen, salt, and alum, but his results do not altogether agree with the former statements; for instance, he makes a distinction between, and, indeed, classifies, all the substances with respect to their action on the dental tissues, some attacking only the dentine, others simply the enamel. These experiments were undertaken with the object of supporting and proving the chemical origin of caries, which, to a certain extent, they establish; but it is not agreed that they showed all the appearances of that naturally produced, or rather with the teeth *in situ*. Nevertheless, for the present purpose

it is quite sufficient to know that they proved certain substances capable of exercising a destructive action on the tooth structures. Of these experiments, one of the most interesting and important was that made with sugar solutions. Sugar is popularly supposed to act very injuriously upon the teeth, and rightly so, but only under certain conditions; namely, when allowed to create an acid fermentation. To demonstrate this, a boiled solution was obtained in which some teeth were placed, and the whole was sealed in a glass bottle by fusing the neck so that fermentation could not take place. After two years, the teeth were removed intact. Under such circumstances, then, sugar has no effect. Side by side with this place a very important observation by Mr. Coleman, in which teeth were immersed in a solution of sugar and water, to which was added a little saliva, with the effect of starting decay and turning the solution acid. Under these conditions, sugar has a destructive action; and, unfortunately, it is under such circumstances that it is most frequently in contact with the teeth. Caries is certainly very frequent among those that have much to do with sugars or sweets, such as confectioners and cooks, who take it into the mouth while sifting it or when tasting.

Again, people can be found who eat a large quantity, and at the same time have sound healthy teeth, as the blacks of the East Indies. From these facts we may assume that strong, well-developed teeth will not be hurt or attacked readily by it, while those less powerfully developed will at once give way.

With regard to the acid solutions that Dr. Magitôt experimented with, they were nearly all shown to be more or less injurious.

Thus citric is very destructive, and is introduced by the use of oranges, lemons, and similar fruits, with the artificial drinks prepared from them.

Malic acid is not less so; and an evil effect is seen in the teeth of people drinking quantities of cider, notably among the French in Normandy, where it is constantly taken, and where also the proportion of caries is high when compared with other districts of the same country.

Lactic and butyric acids are also very injurious ; a considerable quantity of the former is frequently present in the gastric juice. The action of carbonic acid, so constantly present in effervescing drinks, is slight compared with that of those last named.

Acetic acid, produced by the fermentation of some vegetable substances, and present also in vinegar, is very destructive. Tartaric acid found in wines and spirits is also injurious. Alum is particularly so, and it is frequently present in destructive quantities in bread. It is also found in many dentifrices, where it is used as a bleaching agent.

Another result of a high state of civilisation is the introduction of the pharmaceutic remedies, some of which act injuriously either to originate or facilitate decay. The mineral acids, with the exception of sulphuric, are very destructive, and others, such as tannin and alum, may be mentioned. With these exceptions, their influence probably is slight, so that it will suffice simply to mention them.

The state of the general health, so largely modified by the conditions under which we now live, often gives rise to and produces predisposing causes of caries.

For example, by abnormal secretions from the glands about the mouth solutions may be rendered acid even before they are exposed to external influences.

The saliva is frequently thus acted on, but when normal it appears to have a preservative effect on the teeth, and on this ground the habit of tobacco-smoking, which stimulates and increases the flow, may be beneficial.

Other influences may be mentioned for which civilisation is solely responsible, and the most important of them is the establishment of special trades and occupations, which, if they do not act directly on the teeth, do so not less effectually by producing a low, feeble state of the constitution. Dyers and tanners, exposed to acid fumes, have, as a rule, very bad teeth ; and, as a special example, lucifer-match-making frequently produces complicated forms of disease in the mouths of the workmen. Then, when it is remembered that probably no organs of the body are affected so much by constitutional disorders as are the teeth, and, in addition to this, the

fact that it is impossible to improve any defective anatomical form or structure, it is evident that the predispositions to disease are largely increased, especially as such conditions are capable of transmission among families, and sometimes races of the same blood. Under such circumstances it follows that with the increase of population the proportion of caries must advance in a corresponding ratio.

Again, by the aid of science and medical skill, the percentage of feeble subjects preserved is much higher than among savages, where such would soon die off, consequently producing a corresponding increase in the death-rate. And by the same agents these weakly-constituted people are frequently enabled to live longer than those who have not such aids to help them, and to transmit the defects of their own dental arrangements, together with many of the predisposing causes of caries, to an unfortunate offspring.

With such facts before us it appears easy to account for many of the causes, and to comprehend the reasons for such an increased prevalence of caries, to know which is the first step towards remedying the evils, and this must be my only apology for directing attention to such, in one sense, an unpractical, but none the less interesting subject.

Hospital Reports and Case-Book.

ANOMALOUS EFFECTS OF NITROUS OXIDE.

By T. H. COLEMAN, Wrexham.

SOME years ago, shortly after the general admission of nitrous oxide in our surgeries for painful operations, I was waited on by a gentleman of local celebrity as an architect and surveyor. He was suffering most acutely with a lower molar tooth broken down by decay. I advised extraction, and as the operation was likely to prove a very painful one I suggested the aid of the gas as a safe and sure anæ-

thetic. After some considerable persuasion he consented to be put under its influence. He was accompanied by a friend. After the usual preparations and instructions I commenced the administration. All went well for a time, but just as he was passing into a state of unconsciousness his friend, getting excessively nervous, requested me not to give him too much. My patient must have had some uncomfortable ideas in his mind at that particular moment; he suddenly dashed away the inhaler from his mouth, sprang to his feet, and with ferocious looks and gestures accused me of killing him, and that his head was taken off. It needed all the strength of his friend, and the exercise of my agility, to escape from his frantic efforts to grapple with me. But reason speedily asserted itself, and when told of his eccentric behaviour he asserted he knew nothing of it. I at once began to try and account for it. In the meantime I made an appointment for the morrow; this gave me ample opportunity to test gas and apparatus, but I found no fault in the latter, and the gas acted properly with other patients.

At the time appointed my excitable patient presented himself in company with his friend, and with great care I administered the gas a second time. He took it calmly and soon passed into a state of unconsciousness. I extracted the tooth, and began to congratulate myself on my success. But this reflection was of short duration; returning consciousness brought with it another frenzy of rage, accompanied with threats to kill me. His friend intervening was pitched some considerable distance across the room. His fury, however, soon subsided, leaving him in his right mind, but with no recollection of his eccentric performance.

I had another scene a year or two ago with a collier of powerful physique. He too was under the impression I had killed him, and tried to take summary vengeance, but with the help of my assistant I managed to keep him in the chair until he became quiet. I noticed that both patients became rational quite suddenly. I feel quite satisfied that the gas was pure and the inhaling apparatus in perfect order.

Possibly some of your readers may be able to account for these exceptional cases.

British Journal of Dental Science.

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PROVIDENT DENTISTRY.

THOSE who have watched the marvellous success which the provident system of medical relief has attained, wherever the conditions have been at all favorable to its development, will agree with us that it is this system which promises to be the universally adopted scheme of the future. It is indeed the only one which at once secures for the patient adequate treatment, and for the doctor adequate remuneration, while allowing each to preserve his due self-respect; and there can be little doubt that it would long ere this have been widely established, had it not been for the numerous charitable institutions with which it had to compete. It is perhaps premature to say that the days of charitable medical relief are approaching their end, but it is not difficult to see that there are causes at work which must eventually replace the present pauperising system by one more in harmony with the teachings of political economy and the improved education and status of the working classes. When the truth of the paradox—that it does the poor more certain good to invest your penny than to give it in alms—is more widely recognised, there will be a falling off in the constant flow of charitable subscriptions, that “conscience-money” by which the rich endeavour in some measure to reconcile their moral sense to the flagrantly unequal distribution of the things of this world. At the same time, in the more active centres of intelligence the working classes are beginning to feel more and more repugnance to accepting charitable medical aid except on the most urgent necessity. At present the change is more noticeable in respect to out-patient relief, as is well seen in the decay of the old charitable dispensaries of

the metropolis, and the establishment of provident institutions in their place, but there can be little doubt that as time goes on the hospitals will have to rely more and more generally on the subscriptions of patients, and less and less on voluntary contributions. It will depend on the wisdom of the leaders of the provident movement, and on the large-mindedness of hospital governors, whether the system adopted in the metropolis shall be a uniform and all embracing one, or whether it shall be a patchwork of varying and perhaps hostile jurisdictions.

It will be readily admitted that an ideal system of provident medical relief should include every hospital, every dispensary, and every club in London, and that each subscriber should have a claim to whatever form of medical treatment or appliance he might require, from a stay at the seaside to a wooden leg. In a perfect system of provident relief there must be "no extras." The patient's first step would be attendance at one of the recognised dispensaries; from thence he would if his case were found to require it be drafted to a general or special hospital, or he would continue under the treatment of the dispensary doctor, who would have the power of ordering, under appropriate checks, whatever medical resource he might deem necessary. A scheme which linked together all the medical institutions of a town or district, which gave each of its subscribers a claim to a bed in a hospital and to every surgical appliance he might need, without exposing him to the odious necessity of soliciting a governor's letter for every step in his treatment, would have the threefold effect of economising labour, teaching the poor habits of thrift and self-respect, and amply remunerating the medical profession for labours which are now gratuitous, and often we fear inefficient.

At first sight, such a scheme may appear visionary, but it is not at all unlikely that the natural course of events will force it into existence. It needs no far-reaching gaze to see that the medical relief of the poor in the future rests between such a scheme and a gigantic system of State relief, such as exists in many of the Continental cities. But whichever alternative be adopted, it is obvious that any system which

does not place at the command of the poorest all the resources of the Dental as well as the medical art will fall far short of perfection. Hitherto the provident system has been but little applied to Dentistry. Many of the existing provident institutions have a Dental department, but so far as our inquiries have extended, in most cases the services of the Dental Surgeon are confined to extractions, and other like rough and ready methods of treatment. In one of the most flourishing provident dispensaries of the metropolis the Dental Surgeon is altogether excluded from participation in the remuneration, and the patients are necessarily also excluded from the benefits of conservative Dental treatment. Again, in the case of the Reading General Dispensary, another provident institution, with the statistics of which we have been favoured by Mr. George Lyddon, its honorary Dental Surgeon, we learn that though as many Dental cases as 2298 have been attended during the last five years out of an aggregate of over sixty thousand members, most of these cases have been cases of extraction. Now, satisfactory as these statistics may be as showing the progress of the provident system, they can hardly be declared satisfactory from the standpoint of modern Dentistry, and it is not too much to say that no institution can claim to give adequate Dental relief to its subscribers unless it places at their disposal every resource of Dental art. It is high time that it should be generally recognised by the managers of such institutions that the supply of artificial dentures, for instance, is in many cases an integral and indispensable part of medical treatment. So long as medical institutions were supported by charity, it was quite logical to regard such appliances as a luxury for the rich ; but as soon as the poor begin to pay for their treatment, their claims to such a necessary means to health ought to be conceded, and where necessary provided for. The same may be said, with much greater reason, of the varied conservative measures which now form the main part of a Dentist's private work. It may be found difficult in practice to place at the disposal of the poor all the appliances of modern Dentistry, but the provident system is at present in its infancy, and we ought not to regard such a result as

beyond its powers. In any case it is the only system by which there is any hope of effective Dental aid being brought within the reach of the poor.

It is not, however, exclusively with the interests of the poor that the provident system deals. One of its chief merits is that it pays equal regard to the interests of the medical practitioner. It is the only way in which it is possible to secure adequate and assured remuneration for medical work amongst the working classes, and we should be glad to see the Dental profession sharing in the benefits which it holds out to the sister calling. At present the Dental practitioner finds his hands tied in his treatment of the poor, by their inability to meet the necessary charges, and the poor are thus too often driven into the clutches of charlatans, who promise them what they must know they cannot honestly perform at the given price. A well considered scheme of provident Dental relief would cut the ground from beneath the pretenders who now prey upon the working classes, while it would secure for the honest practitioner the work and the remuneration that he has too much self-respect to tout for under existing circumstances. It might, perhaps, be necessary to require an additional payment for the supply of artificial dentures, but such payment would be small compared with the fees which the lower class of practitioners now exact for very unsatisfactory work. The time is not perhaps ripe for any practical move in the direction indicated. We must wait till the provident system has attained a fuller and stronger growth. But a profession like ours, which has made such progress within the last few decades, ought to look far ahead and be ready to seize all the advantages of increased usefulness and improved position which the progress of social evolution holds out to it.

ACCORDING to the 'Ohio State Journal of Dental Science,' a new pulp digester has been discovered, in this case from the vegetable kingdom. It has not yet been subjected to

methodical trial, but if it should fulfil all its promises, its discovery will deserve a lasting place amongst the fairy tales of science. It took place in this wise. Prof. Van Antwerp, its discoverer, was taking home to his country villa a beef-steak wrapped in paper. It happened to break through its covering, and its owner "stepped outside of the pathway, plucked some leaves of the common papaw or *Assimina trilobea*, and used them as wrapping." The next morning the surface of the steak was found in a digested condition. Prof. Van Antwerp was then led to further experiments, and found that the juice of the rind of the fruit would digest dead flesh quite rapidly. He next applied a drop of the juice to the suppurating pulp of an inferior molar. After three hours the pulp was found with a beautiful pink-coloured surface, neither angry nor congested. He dressed it with glycerine, aconite, and water, and the next day flowed oxyphosphate of zinc over it, let it harden, and then covered it with tinfoil. Some time after, the tooth was tested and the pulp found still alive. It is impossible to argue much from a single case, but there seems a high degree of probability that the juice of this papaw will prove a valuable addition to the Dental Materia Medica, if it can only be preserved in a serviceable form.

SOME years ago the Cantonal Government of Geneva established a state examination for Dentists, but omitted to provide the means of instruction by which candidates might qualify themselves for the diploma. This omission has recently been repaired, and a Dental school has been established in connection with the Department of Public Instruction. It opened its doors on the 21st ult. It is placed under control of a commission of five, of whom Dr. Laskowski is president, and Dr. Marcelin and Dr. Redard the Dental members. The instruction is given partly at the university by the professors of the medical and scientific faculties, and partly at the new Dental school in the Rue de Lausanne. The regular Dental lectures will be given by Professors Redard and Marcelin,

while the mechanical instruction will be presided over by a "maitre-mécanicien" not yet elected. In addition to the regular lectures, however, provision is made for the election of assistant professors and for teaching by "privat docents," who will give free courses from time to time. At present arrangements have been made for two such free courses, presided over respectively by M. Weber and M. Willemin. The students may either enter themselves as matriculated pupils or as externs. The former have to pass an entrance examination and two professional examinations, at the end of two and three years respectively, the collective fees for which amount to 350 francs—fourteen pounds. The sessional fee for each course given at the Dental School is two pounds. Extern students need undergo no preliminary test, but they are not admitted to the examinations. Provision is also made for conferring the diploma of Dental Surgeon on Dentists already in practice, in whose case the course of study need not exceed two years. The above are the main features of what appears to be a liberal and well-considered scheme.

THE American poet, Walt Whitman, has said that "Faith is the antiseptic of the soul." If his countrymen agree with him, they will know how to disinfect certain statements of the London correspondent of 'Johnston's Dental Miscellany,' and digest them without injury to themselves. For our part, however, in such a case we would recommend in preference the old-fashioned antiseptic—a grain of chloride of sodium.

SERIOUSLY, the above-mentioned London correspondent is much exercised to find a reason why our brethren in the States are so much more eager for "recognition" by the medical fraternity than English Dentists. In the course of his argument he makes the following statements, which appear to us to require qualification, to say the least. "A greater proportion of English Dentists are doctors of medicine

than of American Dentists." . . . In England "the professions, comprising the Church, the Bar, and Medicine, have been very much overloaded with the sons of rich men, or men of birth—blue blood—who happened to be poor." . . . "It has been fashionable for some time for medical men to take their M.D. degree, and then, finding a difficulty in securing lucrative practice, go over to the Dentists." From these premisses it is argued that "the medical men who are Dentists are more indifferent to 'recognition' than are those who are not medical men. Their indifference is contagious and spreads through all the ranks of the profession." Q. E. D.

To the above statements we would reply—First, that the English Dentists, who are also doctors of medicine, may be almost numbered on one's fingers. Secondly, that it would be an exaggeration to say that even one out of every hundred English medical men is the son of a rich or aristocratic father. The simple truth is that English blue blood still regards the profession of medicine as *infra dig.*, and will sooner go into the tea trade than the dissecting room. Thirdly, it is not the fact that "it has been fashionable for medical men to take their M.D. degree and then go over to the Dentists," unless the London correspondent attaches a very different meaning to the word fashionable than is usually associated with it. For our own part, we would much rather believe that it is the good sense of English Dentists which has made them comparatively indifferent to the recognition of the medical profession. Scientifically they prefer to stand on their own merits, and as for social ambition, why, that is a feeling that only vulgar minds indulge in.

THE editor of the 'Miscellany' has a different explanation from that of his London correspondent. First, the American Dentist "feels himself, as a man, the equal of anybody." Then, why on earth, we would ask, does he need anybody's recognition? Secondly, "there is not so wide a chasm

between the knowledge of the American physician and that of the American Dentist as between the English physician and the English Dentist." That is true, perhaps. It takes many years—five at least—to make an English physician.

WE have received from M. Taillebois the details of a scheme which has been adopted by the Municipal Council of Paris, on his initiative, for securing to the pupils in the primary municipal schools the advantages of gratuitous Dental treatment. M. Taillebois has secured the services of nine Dentists-in-Chief to assist him in carrying out his philanthropic scheme, and as many as eighty assistant Dentists have enrolled themselves under the direction of himself and colleagues. Commencing with this enormous staff, he proposes to institute half-yearly inspections at each communal school of every pupil whose parents may desire it, giving advice and performing extractions whenever needed.

It is a novel scheme, and we shall be curious to see how it works. There can be no denial of the serious results which may follow a want of care and watchfulness of the teeth at the period of the second dentition, and every Dentist will agree with M. Taillebois that periodical inspections such as he has organised form a very necessary part of the hygienic care of the poor. But M. Taillebois is not content with his success. "True views," he writes to us, "know nothing of frontiers. I shall continue the campaign which I have initiated in Paris, and I hope with disinterested perseverance some day to see organised throughout the whole of our old Europe the institution with which I have endowed the French capital."

WE cannot help sympathising with M. Taillebois' scheme, but it is open to one criticism. It involves a revival of that

gratuitous professional work which we had hoped was soon to be a thing of the past. It is a discouragement to that growing spirit of self-help and independence amongst the poor, which it should be the object of all legislation to nurture by every means in its power.

WE are disappointed at the smallness of the recent entries at the two metropolitan schools of Dental science. At the Dental Hospital of London twenty students have recently entered, which, with seven who entered in the summer session, gives an annual total of twenty-seven. At the National Dental Hospital the entries are only eleven. These numbers ought to be doubled at least, if the ranks of competent Dentists are to be kept well filled in the future, and if there is to be that healthy competition without which no profession can flourish. Compare them for a moment with the medical entries. During the past month, at least six hundred and fifty new students entered at the various metropolitan schools of medicine. Now, it is certainly a low estimate to say that there ought to be one Dentist to every ten medical practitioners, if the increasing demand on the part of the public for Dental services is to be adequately met. There are some twenty-three thousand registered medical practitioners, and it is estimated that there are somewhat over two thousand Dentists in serious practice. But, though there are large provincial medical schools in full swing, and medical practitioners are being manufactured by the hundred in Scotland and Ireland, it is found that a total yearly entry at the London hospitals of between six and seven hundred is hardly sufficient to keep up the supply of doctors, the proportion of whom to the population is steadily diminishing. If there is no flaw in our argument, there ought to be at least a hundred new entries every year at the London Dental schools, and even then the competition in the higher ranks of Dentistry would still be far from severe.

WE know that we shall be met with murmurs of dissent, but we cannot help thinking and saying that the state of the Dental profession would be healthier if there were more competition in its higher circles. We do not want to see Dentists waiting, like physicians, till their hair grows grey before they get any private practice worth speaking of. We do not grudge any of our younger members the lucrative practices that tempt them away from hospital work and scientific research. But we think that a certain period of waiting for practice serves not only as a grand moral discipline to the practitioner, but gives him time for thought and investigation, and so benefits the whole profession. It is an axiom in medical circles that most of the good scientific work of the day is done by men under thirty. It is all the more honour, certainly, to those amongst us who, with hourly calls upon their skill, have found and are still finding time for researches, which will make their names honoured throughout the world. It is high credit not to have followed Demas, when the tempter called.

WHAT is the remedy? We are glad to think that it is daily being applied, though at present with such disappointing results. It is to make the profession more attractive to the traditional young man in search of a nice opening, to raise its status and its self-respect, to improve its scientific repute, perhaps to increase its fees *gradatim*, to do anything, in fact, within reason and within honour to draw to us those men of intellect and character who are now starving in other overcrowded callings. All this will come in time. We can wait. There is no profession which has such a hopeful future as ours, when all these petty squabbles about Dentists' Acts and Dentists' Registers shall be buried in the past, and it shall be a rarity to meet with a Dentist who is not a man of education, refinement, and address.

THE Annual Dinner of the past and present Students of the Dental Hospital of London will be held, we are informed, on December 2nd, Mr. Edwin Saunders occupying the chair.

The Dental Examiner.

[*Note.*—Dental materials and appliances intended for notice in the “Dental Examiner” should be sent to the Editor at 11, New Burlington Street, W. All preparations not generally known should be accompanied by a lucid description and a clear statement of their composition. The formulæ supplied *will not be published* unless a written permission is given by the maker.]

Two interesting letters will be found in our correspondence pages in reply to some of our remarks upon stopping materials. That by Mr. Thomas Fletcher contains matter that will bear careful consideration, and if we do not always agree with his conclusions we are at least sensible of the attention he gives to every subject brought under his notice. He says that Sullivan’s amalgam, which has been allowed partly to set, may be worked up again and packed into a tooth, so that it is hard the moment after insertion. Our experience has taught us that a copper amalgam that has once commenced to set should *not* be disturbed unless it is softened in the usual way with heat, as it has a tendency to become mealey, and generally makes a very defective plug. All copper, and particularly silver and tin fillings, should be inserted in a soft condition, and they should have their mercury extracted from the surface so as to be brought into a fit state for burnishing before the patient leaves. This hardening of the surface, by applying some of the same filling from which the mercury has been crushed out—sucking up, as it were, the spare mercury—is now generally recommended, but every amalgam plug is better if left undisturbed until thoroughly hardened. We cannot say that we have ever seen a copper or a silver filling that has not discoloured the dentine when it has been in long enough in the tooth to do so.

We are quite aware that platinum amalgams are dirty to work, but we have not yet had any reliable experience of their behaviour in combination with other metals. All that we can say is this, platinum in combination with silver and

tin does not contract, is easy to work, sets rapidly, and has a smooth, dense surface.

Davis's gold amalgam is a very good filling of its class ; its composition is well known, and its general behaviour resembles the tin, silver, and gold amalgams mentioned in our former remarks.

Although these two letters do not contain anything that is particularly new, the free discussion of such subjects is at all times advantageous ; but, for the present, we have said all we need say, and will wait until some of the newer preparations, now being tried, have been longer in the mouth.

DR. J. H. REDMAN'S UPPER STUMP FORCEPS AND PLUGGERS.

Through the courtesy of Messrs. Ash and Sons we are able to give an illustration of these improved forceps and pluggers. The forceps are intended more particularly for the removal of the palatine fang, and somewhat resemble in form the "bayonet forceps," introduced by Mr. Evrard about ten years ago. The blades of the present instrument are a little straighter and the beaks a trifle broader than those we are accustomed to, and their points being serrated fragments of upper stumps can be readily removed by them. The instrument is beautifully made, well tempered, of great strength, and yet it in no way obscures light in the mouth. It is only six inches and a half in length, a great consideration in practice, as the long-stump forceps formerly used, some of which were over eight inches long, made a careful adjustment of the blades a very difficult matter. Although this pair of forceps can hardly be considered new, the pattern is a very good one, and one that will be found to be of great use in general practice.

Dr. J. H. Redman has also introduced four pluggers suitable for adhesive gold fillings, illustrations of which we are allowed by Messrs. Ash and Sons to publish. No. 1 is intended for mesial approximal cavities in lower molars and bicuspid, and No. 2 for distal approximal cavities in lower



molars and bicuspid. Nos. 3 and 4 are intended for similar cavities in the upper molars and bicuspid. We propose to make some practical comments on these instruments in our next issue of the Dental Examiner.

Review.

Beiträge zur Zahnheilkunde ; neun Abhandlungen. Von LUDWIG H. HOLLÄNDER, Prof., Dr. Med., Docent der Zahnheilkunde an der Universität Halle. Leipzig, Verlag von Arthur Felix, 1881.

Contributions to Dental Science ; Nine Lectures. By Prof. HOLLÄNDER, M.D., &c.

WE believe that in reviewing this interesting work we shall better serve the interests of our readers by giving as briefly as we can the substance of its pages than by submitting them to detailed criticism. It is a volume we should be glad to see in an English dress, for it is a model of clear and thoughtful writing, which favorably compares with much that comes from the profession in English-speaking countries, but, as we fear it is not likely to be translated, we hope to secure to the English reader the next best thing, and to give him the gist of it.

Two of the nine lectures have already appeared in the 'Vierteljahrsschrift,' and are now republished with additions. The rest were delivered by Prof. Holländer to his class last winter. The lectures cover a wide field of interest, as will be seen from the following list of subjects :—I. The operative treatment of the diseased pulp. II. Amalgams and amalgam fillings. III. Cements and cement fillings. IV. The indications for the use of different filling materials, and the treatment of the teeth in childhood. V. Tartar, green deposit, and salivary calculus. VI. Dental and oral therapeutics. VII. Maxillary cysts. VIII. Toothache, its causes and treatment. IX. Hæmorrhage after extraction.

The first lecture, on the operative treatment of the pulp, is the longest and most important in the volume. The author simplifies the consideration of the subject by formulating four different stages of disease, each of which will need a different mode of treatment. The first group of cases are those in which (1) *the pulp is still covered by a thin layer of soft or hard dentine*. If the dentine is hard, a simple gold or amalgam filling is often well borne, especially amongst the Slavonian races, but the author finds that in other cases the direct contact of a good conductor, like a metal filling, with the thin layer of dentine covering the pulp, is apt sooner or later to produce irritation in the latter, leading to deposit of lime salts, the formation of osteo-dentine, and sometimes to acute inflammation of the pulp. He therefore recommends the introduction of a layer of chloride-of-zinc cement in the proximity of the pulp, after which the cavity may be filled with gold or amalgam. The same treatment is to be used also where the dentine is soft, if it is not excessively so, but it is necessary first to treat it with creasote. The second group of cases are those in which (2) *the pulp has become exposed either by the excavator or by caries, but is still healthy*. After pointing out the erroneous views which prevailed so long as to the use of the pulp, and its incapability of returning to a healthy state when once exposed, and which led Dentists to proceed at once to its destruction in such cases, Prof. Holländer passes on to discuss the operation of capping the pulp, and shows how after much working in the dark the following truths gradually became established:—1. The material used for covering the pulp must on no account irritate it, and must be a bad conductor of heat. 2. It must not undergo any decomposition or other change when it comes in contact with the pulp. 3. It must be introduced in a perfectly soft condition, so as easily to adapt itself to the pulp. 4. It must possess a certain power of resistance to enable it to bear the superimposed filling. If the pulp has been laid bare by the excavator and hæmorrhage follows, the author recommends the injection of a warm solution of carbolic acid, the cavity to be subsequently dried with blotting-paper. In other cases it may be necessary to

apply for a day or two a dressing of carbolised tannin. When the bleeding has stopped, a little collodion or copal-ether varnish is to be applied, and the cavity filled with a layer of chloride-of-zinc cement and a metal stopping. The copal-ether varnish may be used even when the hæmorrhage is not quite stopped, and it is also a good application where there has been no bleeding at all, but in the latter case Dr. Holländer prefers Fletcher's nerve-capping. The same treatment may be employed where the pulp has become exposed by caries, but only when it has a healthy look and there is no continuous aching or throbbing. It is always necessary in these cases to lay the pulp thoroughly bare, to find out whether it is quite healthy. A diseased pulp will be found of a dark-red colour and covered with a viscid secretion, which cannot be removed by the injection of warm water.

If these appearances are present, the case will fall under the third group, those in which (3) *the pulp is partially inflamed*. This is to be assumed when the patient has suffered for days or weeks from almost constant aching and throbbing in the tooth, with darting pains along the jaw and other parts of the face. Here, when the pulp is exposed to view, it will appear of a dark-red colour, and if injured will bleed very freely. Many methods of treatment have been employed in these cases, all of which the author discusses, finally giving his own treatment, which is a modification of that of Dr. Witzel. After obtaining very free access to the pulp and washing it with carbolic solution, if the patient has had pain for a considerable time, he proceeds at once to excise as much of the pulp as he can with a spoon-shaped excavator. He then stops the bleeding with spirits of camphor or glycerine and tannin, applies a drop of copal-ether varnish, and fills with chloride of zinc, and gold or amalgam. The success of this treatment he attributes rather to the fact that it secures perfect rest to the remains of the pulp, and excludes all external causes of irritation, than to any antiseptic virtue. Failure is due either to want of cleanliness on the part of the operator, or to constitutional weakness on the part of the patient.

The fourth class of cases includes that in which (4) *the*

pulp has undergone suppuration with or without alveolar fistula, or is gangrenous or completely dried up. The author proceeds under this heading to lay down the indications for destruction and removal of the pulp, which he asserts have never before been accurately formulated. The first of these indications is the possession on the part of the patient of badly organised teeth, with deficiency of lime salts. Here the pulp is itself of low organisation, and it is hopeless to try and save it. The second indication is total inflammation of the pulp, which is known by the intense and continued aching. When the pulp is gangrenous or mummified, it used to be taught that extraction of the tooth was necessary, but the author holds that even in these cases the tooth may be preserved by extraction of the pulp and filling of the root canals. He then proceeds to describe the removal of the pulp in the case of the different teeth, and states that where the first upper bicuspid is concerned it will be generally advisable to extract the tooth rather than to fill the root canal, a treatment which is very difficult to carry out, and seldom successful in saving the tooth.

The use of arsenic in the treatment of the pulp is next described, but the author was evidently not acquainted with the results of Arkövy's researches when the present lecture was written, as he states that "as yet we know nothing of the local action of arsenic." These researches however, go to support the author in refusing to accept Witzel's view that arsenic only acts on inflamed tissue, and in maintaining that a pulp once treated with that agent is irreparably lost. Prof. Holländer warns us against using arsenic in cases where there is periostitis, and in the case of teeth the roots of which are not yet perfectly developed. The formula he recommends is as follows:—Arsenious acid, 5 grammes; acetate of morphia, 10 grammes; oil of cloves and creasote, of each 6 drops; mix into a paste. When carefully applied, he says, arsenic never has unpleasant consequences.

The author next proceeds to consider the preparation of the root canals for filling, and gives a very full *résumé* of the various methods which have been adopted within recent years. He gives a modified approval to Sauer's method of

filling the canal with carbolised catgut and closing with cement, but evidently himself prefers chloride of zinc to any other filling. The lecture concludes with a few sentences on the advisability of filling the canals of stumps before adapting artificial dentures.

The remaining lectures will be dealt with in a future article.

Critical Report.

DENTAL LEGISLATION IN FRANCE.

It is not for us to controvert the claim, which has recently been so solemnly reaffirmed by M. Gambetta, that Paris is still the centre of civilisation, but it is obvious enough that, so far as Dental legislation is concerned, the new republic lags far behind several nations whose civilisation she would deem very incomplete compared with her own. It has indeed been contended by some* that the law passed in year eleven of the first Republic was evidently meant to include Dental practice as well as that of other medical specialties, and there is one legal precedent which confirms this view. The decision of the higher court, however, in 1845, was given in an opposite sense, and since that time the claim of the Dentist to practise legally, simply under what is called a patent, has not been challenged. He is entitled under this to perform any and every operation on the teeth and oral cavity, to use and prescribe all the drugs, caustics, &c., necessary for the treatment of the disease with which he deals, and, furthermore, to administer anæsthetics. This—to quote Dr. Magitôt, from whose brochure on the subject† we have derived most of the facts in the present article—is the “simple and brutal fact.” It has long been felt that

* Guerrier, ‘Union Médicale,’ Mars 28, 1871.

† ‘Lettres sur les projets de réglementation légale de l’art Dentaire en France.’ Paris: G. Masson.

legislation was sorely needed; every day brings to light serious and sometimes fatal injuries due to the ignorance and unskilfulness of improvised practitioners. The list, says M. Magitôt, would form a veritable martyrology. At the hospitals the state of things is equally bad, any one who wishes to try his hand being allowed to practise extractions without any sort of supervision. Remonstrances on this subject have been repeatedly addressed to the Senate, but have been almost uniformly disregarded. Hopes were raised when M. Ferry took the portfolio of Public Instruction, for he was known to take an interest in the subject, but if Dental legislation in France depends on the ministerial influence of M. Ferry we fear that its prospects are not of the most brilliant. However, M. Ferry has gone so far as to refer a Bill on the subject to the Paris Faculty of Medicine, and the Faculty has had it reported on by a commission consisting of MM. Gavarret, Duplay, and Leon Le Fort. The Bill has emerged from the commission, however, in a very different state from what it was when first referred to it. The original Bill proposed to establish a diploma of Dental Surgery as the sole title to practise, and under its provisions every candidate for the diploma would have to show (1) that he possessed the diploma of "Officier du Santé," *i.e.* a lower grade medical diploma; (2) that he had studied Dentistry for three years; and (3) must pass an examination. For this Bill the commission proposes to substitute another, instituting a new diploma, that of Dentist, the candidates for which must (1) at least be twenty years of age; (2) must show evidence of preliminary education; (3) have studied anatomy, physiology, and pathology, for two years at a medical school, and have fulfilled certain hospital appointments; (4) have studied Dentistry specially at a Dental school, or with a Dental practitioner, for two years subsequently to the two years spent in the study of anatomy, &c.; and (5) must pass a specified examination. The Bill further provides that candidates who are already doctors of medicine or "Officiers du Santé," need only undergo the two years of special study and the practical part of the examination. Foreigners who wished to practise Dentistry would

have to undergo the same examinations as Frenchmen, but the minister might exempt them from the other conditions. Dentists, both native and foreign, who could prove that they had been in practice for at least ten years would, on application, be granted a legal right to practise. Those who had been in practice for a shorter period would be allowed a period of three years in which to present themselves for examination.

The above are the main conditions of Bill which has been returned to M. Ferry by the commission elected by the Faculty of Medicine. M. Le Fort, the reporter of the commission, has given a full account of the reasons which induced them to make the changes in the Bill referred to them. He contends that the "Officiers du Santè," who are only entitled to practise surgery and not medicine, are dying out as a separate grade, and it would be bad policy to revive the diploma. The diploma of doctor, on the other hand, is beyond the reach of most Dental practitioners, and to exact it of all future Dentist would be to limit their number to such a degree as to render them unable to fulfil the practical demands upon them. "We want the necessary guarantees," says M. Le Fort, "we do not want useless guarantees. Why require of the Dentist a knowledge of medicine in all its branches, when he will limit his treatment to the mouth and its appendages?" He thus proposes, as we have explained above, to follow a middle course, and imitating the example of all the countries which have already legislated on the subject, to establish a special Dental diploma.

To the statesman who is hedged in by practical exigencies and is forbidden to run after the ideal, the project of M. Le Fort will appear reasonable and statesmanlike enough. At the same time, we cannot fail to sympathise with Dr. Magitôt. With his lofty view of the nature of his calling, he comes forward to condemn the lowlier aspirations of the commission. There is, no doubt, much force in Dr. Magitôt's arguments, and they naturally appeal almost irresistibly to all who have the welfare of the Dental profession at heart. But it is not the Dentists who are the arbiters in a case like this, and we doubt very much whether practical legislators

will be convinced by arguments which they will be apt to think have originated in a deficiency in the sense of proportion between the demands of the Dentists and those of the public, or what Mr. Herbert Spencer would call professional bias.

Dr. Magitôt contends that the practitioner who treats the diseases of the mouth ought to possess exactly the same guarantees of competence as he who treats the diseases of the orbit, the eye, or the bladder. He further states, and we hear it with pleasure, that the number of doctors of medicine in Paris who have devoted themselves to diseases of the mouth and teeth have been quadrupled within the last few years, while a constantly increasing number of the theses for the doctorate have been devoted to these subjects. Further, the Medical School of Val de Grace has recently instituted a series of lectures on the above diseases, and has entrusted them to one of its most distinguished graduates, while a special chair in the same branch of practice has been created by the Faculty of Medicine of Lille. These facts go to show a real scientific movement in the direction of Dentistry, and at the same time lessen the fear expressed by M. Le Fort that, if the possession of the doctorate were exacted of all Dentists, the supply would soon fail to meet the demand.

To the above arguments Dr. Magitôt adds others drawn from the experience of other countries in Dental legislation. In Germany the diploma of Dentists, he says, has a very low reputation, and the majority of practitioners submit to medical tests which enable them to adopt a title of higher grade, that of "*Zahnarzt*"—or, literally translated, Dental physician.

In the United States, where the M.D. only requires one year's more study than the D.D.S., a large number of Dental practitioners take both diplomas; the Dental diploma, he adds—and it is fortunate he did not publish the sentence before he met his American *confrères* at the recent Congress—is "absolument misérable."

In England, the results of the Dentists Act, he says, are very unsatisfactory, and one of its promoters recently told him that it can only be regarded as a provisional measure.

From these statements, which we fear we must set down as

not having all the accuracy and precision for which M. Magitôt is celebrated in other fields of study, he argues that the Bill of M. Le Fort is not commensurate with their scientific exigencies or their professional dignity. He demands in its place:—(1) That the Faculty of Medicine should retain control over the legal regulation of Dental practice as well as over the general and special education necessary to qualify for it, thus remaining responsible guardian of the scientific character and moral dignity of every new practitioner; (2) that the art of the Dentist should be placed once for all amongst the liberal and scientific professions, like that of the oculist, the aurist, &c., and that the Faculty should exact the diploma of physician from all who practise medicine under whatever title; and (3) he begs the Faculty not to lose interest in the question now submitted to it, or to desert the cause of a specialty which it is its duty to place in a position such as it has never yet held in France, and, if possible, to give it a standing higher than the precarious one it holds in other countries.

In conclusion, we may add that we have read M. Magitôt's eloquent letters with much sympathy, and we feel that they must have a material influence on the course of Dental legislation in France. At the same time, we fear that the practical difficulties which have been found in other countries to exclude such an ideal as that at which M. Magitôt aims, will be only too potent across the channel, and that practical legislators will find themselves forced to follow the example which, *pace* our present author, has not been without success elsewhere.

ASSOCIATION OF SURGEONS PRACTISING DENTAL SURGERY.

THE ordinary meetings of the present session will be held at 8.30 p.m. on the third Wednesday of each month (except January), commencing November 16th, and terminating May 17th. The general meeting for election of officers will take place on January 25th. The meeting of November 16th will be devoted to casual communications.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, NOVEMBER 7TH, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

ON taking his seat the PRESIDENT announced that, an old and valued member of the Society, Mr. David Hepburn, of Edinburgh, having been compelled to retire from practice owing to serious ill health, it was proposed by the Council that he should be elected an honorary member of the Society, and he felt sure that this suggestion would be generally approved of by the members.

Mr. A. WOODHOUSE proposed, and Mr. COLEMAN seconded, a resolution "That the thanks of the Society be given to the President for the great munificence and liberality displayed by him in bearing all the trouble and expenses of the entertainment given by him on behalf of the Society during the Congress week, and that the thanks of the Society be also given to Mr. Edwin Saunders for his delightful entertainment."

This having been carried by acclamation, the PRESIDENT said he had felt it to be a great compliment that the Council had shown their confidence in him in thus allowing him to take upon himself the whole responsibility of this entertainment. If he had been guilty of any omissions he hoped they would be excused.

Mr. S. J. HUTCHINSON announced that since the last meeting the museum had been enriched with specimens sent by Mr. Brunton, of Leeds, Mr. Lyddon, of Reading; some curious old instruments had been presented by Mr. Forsyth, and Mr. Weiss, Senr., had sent a number of very interesting specimens. He was happy to be able to state that the new Catalogue was rapidly approaching completion.

ABSENCE OF WISDOM TEETH IN A NEGRO.

Mr. MUMMERY exhibited the skull of a Fingo, one of the races inhabiting South-west Africa. The worn state of the

teeth showed it to be that of an old man, yet all the teeth were perfect, and there was not a trace of caries. A remarkable fact was that the third upper left molar was absent, a very unusual occurrence amongst savage tribes, in whom the wisdom teeth were generally large and well developed. At the request of the President, Mr. Mummery said he should be very pleased to present the specimen to the museum.

Mr. LAWRENCE READ showed a new flask and clamp for vulcanite and celluloid work, the details of which had been worked out by Mr. A. Howarth, of Bradford; he had used it for six months past, and had found it to act very satisfactorily.

A REMARKABLE ODONTOME.

Mr. CHARLES TOMES showed a very large odontome which had been removed by Mr. Christopher Heath from the mouth of a young lady eighteen years of age. It measured $1\frac{1}{2}$ in. by $1\frac{1}{4}$ in., and weighed 315 grains. When the patient first came to Mr. Heath there were no molar teeth on the right side of the lower jaw, but it was said that one had been extracted some time previously. There was, however, great enlargement of the bone in this situation, and a fungous growth from the alveolar process, the appearances closely simulating sarcoma of the jaw. The patient being in a bad state of health, Mr. Heath sent her to the seaside; on her return the swelling had somewhat subsided, and a fistula had formed on the alveolar ridge, which appeared to lead to bare bone. Mr. Heath then proceeded to remove the supposed sequestrum, and after some trouble extracted this mass. It consisted of a confused mass of dentine with slight traces of enamel. Notwithstanding its size he was inclined to think that it was the product of the perverted growth of a single tooth germ.

Mr. Tomes showed also, as being a kindred specimen, a very large odontome from the elephant, which belonged to the Society's museum.

The PRESIDENT asked whether Mr. Tomes had found any cementum in Mr. Heath's odontome.

Mr. TOMES answered that he had not found any, but some of the dentine was so coarse as scarcely to differ from cementum in appearance.

THE SKULLS IN HYTHE CHURCH.

Dr. RICHARDSON showed some photographs of skulls selected from a large number which were preserved in the crypt of the church at Hythe in Kent. They were said to be the remains of a battle fought between the British, under

Vortigern, and the Saxons about the year 450, but careful examination showed that they were a very mixed collection, three, or probably four, distinct types being recognisable. Although not so old as the legend asserted, they were evidently of considerable antiquity, and he had been much struck with the entire absence of all traces of dental caries, though some of the skulls were evidently those of old people.

Mr. MUMMERY said he had also carefully examined these remains, and agreed with Dr. Richardson that they were of very diverse types; he had also noticed the absence of caries.

Mr. COLEMAN said that Mr. Cartwright and himself had examined these skulls seventeen years ago; they found distinct evidences of caries, and also of alveolar abscess, but very much less than would be found in a similar number of modern skulls. It was evidently a very mixed collection.

CONSTITUTIONAL AND LOCAL CAUSES OF CARIES.

The PRESIDENT then called upon Dr. RICHARDSON to read the paper of the evening, on "The Origin of Caries, Constitutional and Local." The following is an abstract of Dr. Richardson's paper:

In our present stage of civilisation caries appeared to be of all others the predominating disease affecting the teeth in this country. For some years past he had introduced into his tabulated clinical records a note respecting the condition of the teeth, and the result of this inquiry had startled him not a little. The returns showed that over 80 per cent. of the persons who came to him were affected more or less with dental caries, and the number examined amounted to over 4000 of both sexes and of all ages. Indeed, in the course of his experience he had seldom met with a person in whom the two sets of teeth were altogether free from caries. He believed also that the disease was now more decidedly marked in the young than it was thirty-two years ago, when he commenced medical practice.

The study of caries was therefore of more than professional, it was of national importance. For such a general development of disease we must look for general causes. Local causes might tend to bring out the predisposition, but it was evident that these could be but secondary, and that the almost universal tendency to the disease must have a deeper or constitutional origin.

In his experience the most common constitutional cause of caries was syphilis, and he was strongly inclined to believe that the general prevalence of the affection was largely due to this cause. Dr. Richardson then proceeded to quote Professor Gross respecting the very wide diffusion of

the syphilitic taint among all classes in the United States of America. Out of a population of forty millions he estimated that about two millions were directly affected with the syphilitic virus. This estimate tallied very closely with that of Dr. Holland of the number of syphilitic subjects in the kingdom of Great Britain, and Dr. Richardson himself had no doubt of the correctness of both these conclusions. And it must be remembered that these figures referred only to adults, who might be reckoned as forming about two fifths of the whole population; their offspring must also be taken into account, and he agreed with Dr. Gross that it was very doubtful whether *any* of the offspring of persons affected with this disease could be considered free from the taint.

The peculiarity of the secondary effects of syphilis were that, whilst it interferes with the nutrition of all parts, it leads to special derangements of nutrition in the osseous and fibrous textures of the body. Contracted in adult life, it did not materially affect the dental structures, though in former years caries as the result of mercurial treatment was common enough; but the hereditary constitution left by syphilis was undoubtedly indicated in the next generation by disease of the teeth and by a constitutional state in which caries was readily developed. The results of his own observations on this subject fully confirmed those which had been brought under the notice of the Pathological Society some years ago by Mr. Jonathan Hutchinson.

Next to syphilis as a constitutional cause of caries he would place dyspepsia. Many would give this the first place, and he would admit that it was difficult to say which was the more important. The form of this disease which produced the greatest amount of evil was that which was induced in the first months of life by improper feeding, and especially by the substitution of artificial foods for the natural breast milk. Dr. Richardson once thought that the effects of dyspepsia in producing caries were only developed during the period of infancy, and he still thought that this was the most common time for the commencement of the evil. The child being deprived of its natural and admirably adapted food, and supplied with nourishment which its stomach could not digest nor its body assimilate, its tissues generally were imperfectly constructed; and although it might retrieve in after life some of the harm which had been inflicted in the case of tissues which are constantly undergoing reconstruction, in the case of such structures as the teeth, made for the whole of life in a few critical months, perfection was impossible if the start was bad.

With regard to the influence of the strumous or scrofu-

lous and the tubercular diathesis in producing caries, Dr. Richardson thought that it had been exaggerated. Both the scrofulous and tuberculous was often subject to very obstinate and troublesome dyspepsia, and the grafting of syphilis on struma produced about the worst results the physician had to deal with; but, excluding these causes, he believed that struma by itself did not necessarily predispose to caries. The Dentist saw many strumous patients with bad teeth, and held the diathesis to be the cause, but the physician was often surprised to observe, amid all the havoc which struma inflicts on its victims, how wonderfully the teeth escape. The same might be said with regard to the large number of tuberculous patients who annually came under his notice.

At one time there was a great controversy as to whether the epidemic diseases of children exerted any influence on the permanent teeth, leading to caries in later life, but careful observation, extending over more than twenty years, had convinced Dr. Richardson that they had no such after effects.

Practically, then, the constitutional causes of caries might be said to be two in number, the hereditary taint of syphilis and the occurrence of dyspepsia, and consequent faulty nutrition, during the time when the teeth were being developed.

Dr. Richardson then passed on to consider the local causes which, acting secondarily, were apt to call forth caries. He believed that caries was rarely of purely local origin, but when there was organic failure of nutrition within the tooth, very slight external causes, acting physically or chemically, would produce rapid effects. There were, however, a few such direct local causes, physical or chemical, but he believed that they were comparatively of slight importance. They were—(a) the action of heated fluids taken into the mouth; (b) the action of acids upon the teeth; (c) deficient cleanliness of the teeth; (d) exposure of the teeth to the action of certain chemical substances during work at some special occupations. He had met with one or two instances in which toothache and caries had apparently resulted from cracking of the enamel consequent on taking heated liquids into the mouth, but he thought the direct causation was open to some measure of doubt. With regard to the second cause, he had never been able to satisfy himself that acids taken into the mouth simply in solution with food played any direct part in the production of caries. Deficient care in cleaning the teeth might, under certain circumstances, be a cause of caries, though the fact that

amongst uncivilised nations and animals caries was rare showed that if the secretions of the mouth were healthy systematic cleaning of the teeth ought not to be necessary. He thought that amongst dirty people smoking favoured caries by deranging the secretions and leading to deposits about the necks of the teeth and setting up disease below the level of the enamel.

The action of corrosive substances upon the teeth of those who are engaged in certain industries produced decided effects in some few instances, but was not so extensive as might at first be supposed. Those who suffered most from this cause were fur dyers, who were constantly exposed to the fumes of nitric acid, used in preparing the skins, chlorine workers, bichromate workers, bronzers, and in a less degree flax dressers and tobacco workers.

There were two points on which he thought the experience of Dental would be instructive to medical practitioners. First, did caries ever proceed from without inwards in the direction of ulceration? And secondly, when one tooth has become carious, was it at any stage of the disease liable to directly contaminate teeth that were in immediate contact with it? The popular opinion on both these points was affirmative, but he had some doubts in his own mind, and should be glad of reliable information on the subject. In the latter case especially he thought that the caries of two adjoining teeth was more likely to be due to exposure of both to the same cause than to direct infection from one to the other.

In conclusion, he would urge upon the Dental profession the importance of impressing upon all with whom they came in contact the necessity of leading a better and more natural life if they wished to exorcise the terrible disease which was demoralising civilised humanity, and of assisting to promulgate the natural law that it was the duty of every mother of whatever rank to nurse her child and gradually to lead its vital steps into healthy independent existence.

The PRESIDENT remarked that, from his knowledge of Dr. Richardson, he felt sure that he would read a good paper, but he scarcely expected that he would open up so wide a field for discussion. With regard to the questions which the author had put to them towards the end of his paper, he thought that the popular idea was right in both instances. Certainly, in the great majority of cases, caries spread from without inwards, and the fact that if a badly-decayed tooth be carefully filled over the superficial surface of the caries it would last a long time, although diseased tissue still existed

under the stopping, told strongly in favour of the external origin of caries.

Mr. MUMMERY said he was surprised that Dr. Richardson had not noticed a point to which Dr. Kingsley had directed attention in his paper read before the Congress, viz. that mental excitement appeared to have much to do with the premature loss of the teeth. It was certainly a fact that as the brain increases in size and development the jaw diminishes, and that a large jaw went with a low intellect.

Mr. COLEMAN said that, having been the colleague of Mr. Hutchinson at the time when he was making his inquiries respecting the effects of syphilis on the teeth, he had been led to take considerable interest in the subject himself, and his decided opinion was that syphilitic individuals were not much more subject to caries than other delicate persons. He was disposed to attach much more importance to mixed diet and the use of soft food. He had also no doubt of the power of a carious tooth to infect its neighbour, as was shown by the fact that if a diseased tooth was allowed to remain in the mouth the next tooth was pretty sure to be affected, but if the first was removed at an early stage no more caries would appear.

Mr. OAKLEY COLES called Dr. Richardson's attention to two by no means uncommon causes of caries which he had passed over. First, that it was common to meet with most extensive and rapid outbreaks of caries in adults after acute febrile diseases, as after typhoid; and secondly, the mechanical effects of undue impact in causing cracking of the enamel, followed by decay.

Mr. ARTHUR UNDERWOOD was of opinion that septicity was the chief local cause of caries, *i.e.* the action of germs; there must be a predisposition, a constitutional weakness, which might be due to syphilis, improper feeding, &c., but his investigations led him to believe that if germs could be excluded, no caries would take place, and that the presence of these organisms was a *sine quâ non* for the production of the disease.

Mr. R. HEPBURN had been led to think that smoking so far from causing caries had rather a contrary effect, that it exercised a preservative effect on the teeth. He would admit that smoking in excess might lower the tone of the system, and that this might react upon the teeth.

After some further discussion, in which Messrs. Hutchinson, Charles Tomes, Mummery, and others took part, Dr. Richardson replied, and the meeting was adjourned at half past ten o'clock.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON.

ORDINARY MEETING, OCTOBER 10TH, 1881.

ROBERT HALL WOODHOUSE, Esq., M.R.C.S., L.D.S., President,
in the Chair.

MESSRS. KIRBY and SEAGER were balloted for and elected members of the Society.

Messrs. G. Hooper, C. Roberts, H. Apperly, H. Pillin, A. Jones, P. Phelps, T. Petherbridge, G. Thomson, E. Latchmore, H. S. Burton, K. McAlpin, H. Baldwin, — Fox, A. King, G. N. Skipp, — Dorey, and W. Williams were proposed for election.

Casual communications were brought forward by Messrs. Amoores, L.D.S., G. D. Curnock, L.D.S., and T. Read. Presentation of specimens were made to the Museum by Mr. Marcus Davis, L.D.S.

The President then called on Mr. J. O. Butcher to read his paper, "On the Influence of Civilisation on the Teeth," which we publish in full in another column.

A discussion followed, in which the President and Messrs. M. Davis, L.D.S., J. S. Amoores, L.D.S., F. N. Pedley, M.R.C.S., L.D.S., G. D. Curnock, L.D.S., W. Hern, L.D.S., A. H. Mahomed, and W. Harrison took part.

Dental News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following questions were placed before the candidates for the Diploma in Dental Surgery, at the recent examination on October 26th :

ANATOMY AND PHYSIOLOGY.—1. Describe the course and branches of the Internal Maxillary Artery. 2. Describe the functions of the Tongue, and the Nerves concerned in each.

SURGERY AND PATHOLOGY.—1. What do you understand by a "Ranula"? Give its symptoms, pathology, and treatment. 2. Give an account of the process of Healing (1) of a simple incised Wound; (2) of a lacerated and contused Wound.

DENTAL ANATOMY AND PHYSIOLOGY.—1. State the periods of eruption of the several Temporary Teeth. Into what

groups do they, in this respect, admit of being divided? and what pauses occur in the process? 2. Describe the structures met with in a complete Vertical Section through the Sac of a developing Tooth at the period of commencing calcification. 3. Mention the various methods of Attachment of the Teeth to the Jaws. Give examples of each variety.

DENTAL SURGERY AND PATHOLOGY.—1. What are the most frequent causes of Death of the Pulp? By what structures are so-called dead Teeth in relation with surrounding living tissues? and what morbid conditions may lead to their ultimate loss? 2. State the conditions under which you would consider the following materials the most suitable for filling Teeth, viz. gutta percha, zinc oxychloride, zinc phosphate, and copper amalgam. 3. Describe the morbid appearances and ordinary causes of the different conditions known by the terms Gingivitis, Riggs' disease, and Blue gum.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following were the questions at the recent examination for the Dental licence:

Examiner.—MR. C. STAMER O'GRADY.

1. Trace the effects of mercury on the teeth and soft structures of the mouth. *a.* In cases of mild salivation. *b.* When the administration of the drug has been pushed to an extreme degree. 2. Give a *résumé* of the various operative procedures which have been practised for the cure of cleft palate. What dangers, present or remote, may be caused by these operations?

Examiner.—MR. B. WILLS RICHARDSON.

1. What are the provisions for the digestion of proteids in the gastro-intestinal tract? 2. Describe the peculiarities of the connective tissue in tooth pulp.

Examiner.—MR. HENRY G. SHERLOCK.

1. Describe the process of excavating and filling a posterior approximate cavity in a second lower molar tooth. 2. What instruments would you employ in gold plugging a cervical cavity of a lower incisor?

Examiner.—MR. JOHN A. LONGFORD.

1. Describe the process and materials used in colouring gold plates of 16 carat standard. 2. Give the difference in the alloy of gold to make springs, plates, and clasp wires.

Examiner.—Mr. F. ST. B. TAYLOR.

1. Describe, in the order of occurrence, the symptoms, local and general, arising from caries extending to the pulp in a third molar and permanent central incisor. 2. Give a description of the different methods and appliances for the correction of irregularities of the teeth.

Examiner.—Dr. EDWARD A. STOKER.

1. Describe and contrast the upper and the lower permanent molars, and give their vascular and nervous supply. 2. Name the muscles of mastication, and give the attachments, actions, and nervous supply of pterygoids.

AT a meeting of the Council of this College, held on the 20th instant, the following gentlemen were elected Examiners for the ensuing year to examine candidates for the diploma in Dental Surgery:—B. Wills Richardson, Edward A. Stoker, Edward S. O'Grady, Henry Gregg Sherlock, John Henry Longford, and Frederick St. Barbe Taylor, Esqs.

PASS LISTS.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following gentlemen, having undergone the necessary examinations, were admitted Licentiates in Dentistry at a meeting of the Board of Examiners on the 28th ultimo, viz.:

Hedley, W. Snowdon, M.R.C.S., A.M.D.

Richardson, Francis, Derby.

Turner, William A., Chichester.

Mason, C. Browne, Exeter.

Headley, H. Parry, Oxford.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

MR. MATTHEW FINLAYSON, Alloa, having passed his final examination, was admitted a Licentiate in Dental Surgery on the 20th ultimo.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following gentlemen were admitted Licentiates in Dental Surgery at the October sittings of the examiners:

Adamson, W. M., Glasgow. Wills, Robert M., London.

The following gentleman passed the first part of the examination:

Stocks, H., Haslingden.

Two candidates were remitted to their studies.

PATHOLOGICAL SOCIETY OF LONDON.

At the next meeting of this Society on the 15th inst., Mr. Pearce Gould will exhibit: 1. Two teeth from an infant three days old; 2. Specimen of odontoma. Dr. Isambard Owen: Hypertrophied toe-nail, seven inches long.

 APPOINTMENTS.

CURNOCK, G. D., L.D.S., has been appointed Assistant Dental Surgeon to the National Dental Hospital.

HEPBURN, DAVID, L.D.S. Eng., has been appointed Dental Surgeon to the Dental Hospital, Leicester Square, *vice* C. J. Fox, L.D.S., resigned.

SMITH, ALFRED, L.D.S. has been appointed Assistant Surgeon to the National Dental Hospital.

 Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

 COPPER AMALGAMS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In the 'British Journal of Dental Science' for October 15th is a note questioning my statements that plugs of copper amalgam as generally inserted are not moisture tight. I may fairly take exception to the expression of the writer, that I "seem to think," &c. I do not think anything at all about the matter; it is a question of direct experiment, and the fact is easily proved.

If any operator will notice carefully all plugs of Sullivan's amalgam in the mouth he will occasionally see one which, although black as coal on the surface, has not in the slightest degree stained or discoloured the tooth. These plugs are often mistaken for silver amalgam, and I believe they are inserted by softening the mass an hour or two before it is required. It becomes so hard in working as to require packing with some amount of force, and is for all practical purposes hard as soon as inserted. These plugs are and remain water-tight and do not discolour the tooth, and it is possible to insert then in this manner in glass tubes so that they shall be tight against the penetration of coloured fluids. The same mass, if used at once as soon as softened, will, in the hands of nearly every operator, make a leaky plug, and these plugs,

balling up and leaving the sides of the cavity, cause discoloration of the tooth substance by the formation and absorption of copper salts.

I have repeatedly taken old teeth which have been extracted containing plugs of this amalgam, which evidently have been in the mouth for many years, and proved not only their composition but their moisture tightness, when discoloration of the tooth substance is absent. Further than this, it is no rare thing to see a tooth which has been filled with a copper amalgam plug which has been so loose as to fall out, and these teeth may occasionally be seen for years afterwards without any filling and without any further tendency to decay; the copper salts absorbed afford perfect protection until they are slowly dissolved out, when decay again commences.

With regard to the substitution of platinum for gold in amalgams the action of the two metals is so totally different that it can hardly be a question of substitution. If platinum alone is added to a silver tin alloy it must be in a sufficient quantity to cause quick setting, or, as Dr. Flagg shows clearly, it is totally useless and may with advantage be omitted. If in sufficient proportion to cause this quick setting it causes also extreme dirtiness in use, and becomes objectionable. This dirtiness can be remedied by the addition of either gold or copper, the latter having the objection of causing liability to discoloration, and it would therefore appear necessary that where platinum is used in a sufficiently large proportion to be of value, the addition of gold is necessary to correct the fault caused by the platinum. If discoloration is no objection platinum may be safely replaced by copper with nearly as good results, but platinum, which causes quick hardening, can hardly be considered as a substitute for gold, which delays the setting of all alloys.

I am, &c.,

THOS. FLETCHER

PLATINUM AMALGAMS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In the 'British Journal of Dental Science' for October 15th, at p. 981, in that most useful department, "The Dental Examiner," now devoted to a series of papers on "materials recommended for filling teeth," you mention platinum as a substitute for gold, but you add that time alone will decide how far these amalgams will keep their colour in the mouth. Now, sir, "there is the rub," and as a practitioner of some experience and close observation, I undertake to anticipate the answer by stating that platinum amalgams will not and do not keep their colour in

the mouth, but rapidly turn black, and even on masticating surfaces where, by constant attrition, one might expect to find them a good colour, they are a very dark grey and look most unsightly. On the other hand, my experience of the amalgam prepared with gold has been the reverse, and I can supplement all you say in support of this variety of amalgam as to its superiority. Again, platinum amalgams are so very slow in setting, and take up mercury badly except by mixing in the hand to obtain the heat generated by friction, which helps the operation. The great drawback of that, however, is the dirtiness of the hands it entails, although some manufacturers of platinum amalgam have lately adopted means of making them cleaner, but by so doing have been obliged to imitate the gold amalgam. But this will not do for platinum; a true platinum is very dirty. There is much to be said about plastic fillings just now. What has become of those beginnings of the end? Have they turned out mares' nests, or are they the end of the beginnings? The form of the best gold amalgam I have found is Davis's, which is always reliable, and is used next to gold foil. Yours, &c.,
Q.

SAILORS' TEETH.

To the Editor of the 'British Journal of Dental Science.'

SIR,—The set of answers to Mr. Mummery's questions relating to the etiology of Dental caries, which were contributed by Mr. Hardie, of Alloa, to the 'British Journal of Dental Science' of October 15th, contain a good illustration of the truth of your editorial remarks to be found on p. 926 of the preceding number.

Mr. Hardie says that sailors who faithfully masticate their food have strong healthy teeth, whilst others who soak their biscuit and bolt their meat have a mouthful of decayed teeth and stumps. The fact so stated is true enough, but the inference which apparently he intends to convey in his not very clearly expressed paragraph is that the one class have good teeth *because* they chew their food, and the other bad teeth *because* they bolt it.

I would suggest quite another explanation. Sailors may be divided into two classes. A large number, probably the majority, are derived from our sea-coast population; their fathers were fishermen, boatmen, &c., and in many cases were sea-going sailors themselves in their younger days. These men have, as a rule, good teeth. But there is also a large minority who have been recruited from our town populations, who, as boys have taken to the sea from love of a roving life, or have been sent to sea by their friends because

nothing else could be done with them; such men, as might be expected, have generally very bad teeth.

I think, then, that if Mr. Hardie will inquire a little more carefully, he will find that most of the young sailors who "soak their biscuit before they are twenty-one" are town bred, and they soak their biscuit because their teeth are sensitive, though there may be no actual caries present, and not, as Mr. Hardie seems to think, simply because they are too idle to bite it.

When a man who hails from a coast town is found to have bad teeth, it will generally be found that the defect is derived from the mother, and that she was a town-bred girl. As a rule, however, these men marry women in their own class, and it may still be said that sailors by descent have large and strong teeth, but this is not always the case with those who are sailors by adoption. I am, &c.,

PLUM DUFF.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM OCTOBER 1ST TO OCTOBER 31ST, 1881.

Extractions	Children under 14	349
	Adults	615
	Under Nitrous Oxide	368
Gold Stoppings		133
White Foil ditto		14
Plastic ditto		488
Irregularities of the Teeth		78
Miscellaneous Cases		359
Advice Cases		147

Total..... 2551

HERBERT G. BLACKMORE,

House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM OCTOBER 1ST TO OCTOBER 31ST, 1881.

Number of Patients attended	1275	
Extractions {	Children under 14.....	337
	Adults.....	493
	Under Nitrous Oxide	130
Gold Stoppings	52	
Sheets of Gold used, independent of Pellets.....	68	
Other Stoppings	318	
Advice and Scaling	108	
Irregularities of the Teeth	32	
Miscellaneous.....	236	

Total operations 1706

JOHN S. AMOORE,

House Surgeon.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
5. The Journal will be supplied direct from the office on PREPAYMENT of subscriptions as under:

Twelve Months (post free) 14s. 0d.

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ANSWERS TO CORRESPONDENTS.

L. VANDERPANT.—Many thanks for your enclosure.

"STUDENT."—Apply to the Registrar of the General Medical Council.

"L.D.S."—There is no help for it. The regulations of the College are stringent on the point.

Communications have been received from Messrs. Thomas Fletcher (Warrington), Editor of Johnston's Dental Miscellany (New York), H. S. Blackmore (London), Lawrence Vanderpant (New York), Claudius Ash and Sons (London), James Robertson (Edinburgh), Hon. Secs. of Odontological Society, "Plum Duff," Walter Harrison (London), Morton Smale (London), T. H. Coleman (Wrexham), E. A. Davies (Liverpool), Walter H. Coffin (London), Arthur Underwood (London), E. Taillebois (Paris), Secretary of Faculty of Physicians and Surgeons of Glasgow, House Surgeon of National Dental Hospital, Matthew Finlayson (Alloa), Marshall H. Webb (U.S.A.).

BOOKS AND PAPERS RECEIVED.

'Dental Cosmos.' 'Lancet.' 'Medical Times and Gazette.' 'British Medical Journal.' 'Pharmaceutical Journal.' 'Progrès Dentaire.' 'Réglement de l'Ecole Dentaire de Geneve.' 'Chemist and Druggist.' 'New York Daily Tribune.' 'Dental Advertiser.' 'Lettres sur les projets de réglementation légale de l'art Dentaire en France,' par le Dr. E. Magitôt.' 'Specialist.' 'Dental Record.' 'Missouri Dental Journal.'

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

DEC 19 1881

34 Beaver Hall Terrace,

MONTREAL.

British Journal of Dental Science.

No. 333. LONDON, DECEMBER 1, 1881. VOL. XXIV.

RESTORATION OF CONTOUR AS A MEANS OF PREVENTING EXTENSION OF DECAY ON PROXIMAL SURFACES.*

By MARSHALL H. WEBB, D.D.S., Lancaster, Pa., U.S.A.

RESTORATION of the contour of a part or parts of the crown of a tooth signifies not only the building out and finishing of the gold to the line that defined the figure originally, but by it is meant the knuckling-up of the tooth restored to the one adjoining in such a manner that the margins of enamel may be free from contact, and that food cannot be forced between the teeth from the masticating surface.

For full restoration of contour it is necessary to gain space to prepare the cavity, pack the gold, and finish the filling. This must be done either by wedging at the time of performing the operation or by previously placing or pressing wood, linen, tape, or cotton between the teeth. When the necessary space has been made in this manner, particularly between incisor and cuspid teeth, white gutta percha should be placed in the cavity and the space to remain a day or two, or till the irritation incited by the wedging has passed away. Rubber ought not to be used for pressing teeth apart, for the reason that it incites far more irritation than other substances. It is sometimes best to place a wedge of orange wood between the teeth, even after having pressed them apart, not only to gain more space than that had from previous wedging, but to arrest the tendency of their approaching each other, and to steady the

* Read before the Section of Diseases of Teeth, International Medical Congress, August 5th, 1881.

organs for the performance of the operation, particularly if the irritation from the slow wedging has not passed away so as to admit of the insertion of all, or almost all, the gold by the aid of the mallet.

When the cavity extends almost to the margin of the cementum, the gold should be built into and from the starting-point along the cervical wall, and to the part where the convexity of the filling must be gradually increased. When this much of the gold has been inserted with the mallet, and smoothly finished with fine separating or other files, a wedge of orange wood ought to be inserted between such gold and the tooth adjoining, and sufficient space thus secured to enable the operator to so complete the filling that there shall be no space between the teeth, excepting at and near the necks. Unless separation by pressure is made in some such manner as indicated, gold cannot be so finished as to have the teeth come closely together and prevent the wedging of food between them. Pressure ought not to be too long continued or rudely made, else circulation in the capillaries and protoplasmic bodies of the pericementum may be so interfered with as to prevent return of the parts to the normal condition after the wedge has been removed.

After sufficient space has been gained, the rubber dam should be applied to the two teeth separated by pressure and the tooth adjoining each, that those pressed apart may not come together during the performance of the operation or insertion and finishing of the filling, and that the organs may be the better operated upon. A cavity within the proximal wall of a bicuspid or molar tooth should be opened into from the masticating surface, excepting in rare cases, because, even when but little tissue appears to be disintegrated, this surface would be almost reached upon the perfect removal of the decalcified tissue, and the plate of enamel be liable to fracture if hard substances were to come in contact with it during mastication of food. It is far better to cut away the enamel between the cavity and masticating surface, because a clearer view is thus had, and the whole operation can be performed in a more satisfactory manner. The sulci

and fissures are usually imperfect, and should be prepared and filled in connection with, and at the time of, the performance of the operation within the proximal wall.

That operations may be successful, every cavity must be so prepared that no disintegrated tissue remains, excepting there be a little discoloured dentine near the pulp, and that should be left for its protection. The margins of enamel should be slightly bevelled where gold is to be placed over them, and they ought always to be made smooth and even with fine, sharp burs, files, and emery cloth. A groove about the sixty-fourth of an inch deep should be cut along each wall of the cavity, and must be made in the dentine within and near the line of both the buccal and palatal or lingual portions of enamel. It ought to extend from the masticating surface to, but not along, the cervical wall, unless it be in some cavities in the incisor teeth, because of there not being such a body of tissue at that part as to make it safe to remove any of it for the purpose named. In the preparation of a cavity in the approximal wall of the enamel of a bicuspid or molar tooth enough of the tissue towards both the buccal and palatal or lingual walls must be cut away to free the edges, and so restore the contour of the parts and finish the filling as to keep the margins of enamel free from contact with the tooth adjoining. This is the only way to keep the margins of enamel permanently separate and to prevent extension of decay.

After the preparation of most cavities, particularly those that are deep, carbolic acid ought to be applied, to serve not only as a disinfectant, but also to coagulate the protoplasm of the ends of the fibres in the dentinal canaliculi and partially obtund sensation. In those cases where thermal changes may produce more than the usual shock in healthy tissue after the gold has been inserted and the operation completed, oxychloride of zinc ought to be placed in the bottom of the cavity as a non-conductor of the currents incited by heat and cold in the dentinal fibres.

When a cavity within the approximal wall of a bicuspid or molar tooth has been prepared as described, a starting-point should be made in some part of the cervical wall and in

that portion of the dentine between it and the enamel or cementum which shall be the safest. This point, in which to start the filling, should only be deep enough to retain the narrow pieces of cohesive gold first introduced while other pieces are being built upon them, and the filling carried along to the groove in each wall of the cavity. The gold ought to be built against every portion of the dentine, packed as perfectly as possible along the enamel and a little beyond the margins, and carried fully to the line that originally defined the contour of the part. To thus perform an operation, it is necessary to build that part of the gold nearest to the buccal and masticating surfaces against the approximal surface of the adjoining tooth. By performing the operation with the electro-magnetic mallet, the passing of the packing instrument from off the edge, against or over which the gold is being placed, may not only be avoided but the surplus material can be so trimmed away during the performance of the operation that comparatively little trimming is afterwards necessary.

Cohesive gold foil, Nos. 30 and 60 for large, or foil folded to Nos. 16 or 20 for small fillings, and not touched with the fingers, ought to be used in the performance of all operations, and should be made compact by the aid of the electro-magnetic mallet, when it is rightly adjusted and carefully operated, especially in the cases just referred to and those where frail edges of enamel are to be supported and protected. All gold ought to be cohesive, particularly where a mallet is used, because each piece of foil should remain just where it is placed, and the filling should always be one and inseparable. When foil has been so impacted that the substitution for lost tissue is complete, a fine saw or file should be used to cut away the surplus material to the prepared edge of enamel against which the gold is placed, and to aid in shaping the filling like the original contour of the part, after which narrow strips (a line or an eighth of an inch wide) cut from fine emery-cloth or paper should be so manipulated as to properly finish the surface of the gold.

When this has been done and the rubber dam removed, the finishing should be completed by the use of fine pumice

and silex on linen tape. The gold at the masticating surface should be trimmed down with fine burs and made concave or finished down to represent the original contour or outline of the part operated upon. The gold should be so placed in the cavity as to be flush with the prepared margins of enamel, and made concave when such concavity is indicated. Fine burs should be used for trimming and shaping such fillings, as well as the palatal surface of the gold in the incisor and cuspid teeth, because the form of the remaining part or parts of the cusps and prepared edges of enamel against which the gold is placed may be changed or disfigured, and the tooth be made less useful when corundum cones are used. The polishing of the gold upon the surface referred to should be done with pumice and silex, upon suitably-shaped points of wood, leather or rubber.

In every case the gold ought to be built out to the original contour of the part, and a little beyond the margins, then finished down to the surface of the enamel, so that the outline of the whole filling shall be the same as the line that bound, defined, or terminated the lost tissue. This line ought to be fully restored, particularly the approximal surfaces of the bicuspid and molars, and the gold should be carefully trimmed down to, and finely finished with, the margins of enamel, which margins, in such cases, more especially than in others, must be free from the adjoining teeth to prevent extension of decay. If gold be not placed compactly against, and be not flush with, the edges of enamel the operation is not such as is demanded for the preservation of the remaining tissue. A flat surface of gold should not be made, because the tooth thus operated upon and the one adjoining may move closely together, and disintegration of enamel then take place at or near the part or parts in contact. In such cases disintegration usually takes place near the buccal or palatal or lingual wall of the enamel that is in contact along the proximal surface against which gold (or other material as well) had been placed, while other parts around the same filling may remain free from decay. Decay about the parts restored is not likely to take place where there is such full restoration of the contour of the

missing tissue and close knuckling-up of the teeth as to leave the margins of enamel free from contact and prevent the wedging of food between the approximal surfaces thus restored.

Restoration of contour prevents contact of the margins of enamel, and this prevention is necessary for the preservation of the remaining tissue, especially when the tissues of the tooth operated upon are not fully calcified. The contour of missing tissue ought always to be so restored with gold that the enamel of one organ may not be in contact with that of the next in the arch, and also that a part of the gold in one may be against or tightly knuckled-up to the normal tissue of the tooth adjoining, or to a filling if one has been inserted in it; then disintegration is not likely to take place, because of the freedom from proximity, and the cleansing (by the saliva or fluids taken into the mouth, if by nothing else) of the margins of enamel against which the gold has been placed. All operations ought to be performed as artistically and made as nearly perfect as possible, so that if gold is exposed to view its appearance shall be beautiful and rather pleasing than otherwise. When operations have been so performed as to entirely prevent fluids or semi-solids from entering between gold and the tissue against which it is placed, and all discoloration has been removed from the surface of remaining tissue, the gold tint may be seen through the light walls or edges of translucent enamel soon after the removal of the rubber dam and completion of the operation. If there be a dark line or spot at a part where the gold should be against the dentine and enamel, the operation has been imperfectly performed, and if not re-performed, as it ought to be, there follows extension of decay and failure of the filling.

Disintegration commences at and often near the part where enamel is in contact with another tooth, and soon takes place along the whole proximal surface and extends to the dentine, in which tissue decay progresses rapidly. In those cases where the system has been maintained in good condition during childhood and youth, and the tissues are first-class, disintegration takes place slowly and does not

become so extensive, so that where decalcification of enamel is only superficial it can be removed, and, after a finely-finished surface is made, decay will not be likely to commence again. In no case should a separation be made between the teeth, however, for even in such cases as those just mentioned, food may so wedge against the gum as to bring about recession of this tissue and exposure of the necks of the teeth, and finally lead to the formation of a cavity of decay at the parts referred to. Separations ought not to be made between the teeth, for the reasons, that they interfere with mastication, annoy the patient, and, with few exceptions, do not prevent disintegration upon or about the surfaces that have been cut.

The teeth separated again come in contact almost invariably, excepting where antagonists prevent them; food wedging between them undergoes fermentation and disintegration takes place, and that, too, in a part of the tooth where it is difficult to perform a first-class operation. This may not occur, however, till long-continued pressure of food paralyses the nerves throughout the gum tissue pressed upon, and breaks the circuit or obstructs the movement of the molecules of living matter through that fine reticulated line between the gum and the brain, and the patient is no longer notified of the presence of such obstruction to the neural and vascular circulation. This condition of the gum tissue as inevitably leads to the return of its elements to the embryonal state as does interference with nutrition of any other part of the system. When the gum is in normal condition it is so close to the necks of the teeth as to prevent the lodgment of foreign matter beneath its margins. The gum fills the space between the teeth almost entirely and protects all the parts it covers, and this myxomatous tissue should always be protected by full restoration of the contour of the enamel that is missing. The gold ought to be finely finished at all points that there may be no obstruction to the tissue again closing around the neck of the tooth operated upon. In this manner the margin of enamel at or near the neck of the tooth against which the gold is placed and smoothly finished is protected by the gum, and, if the whole

operation has been properly performed, extension of decay at that part is prevented. If disintegration does not extend to or beneath the margin of the gum (and especially if decalcification is imperfect), both the enamel and dentine of the approximal, as well as the buccal, surface of the tooth being operated upon, ought to be cut away with fine burs to fully the thirty-second of an inch above the part where the gum closes around the neck of the tooth, so that when the operation is completed this part may be protected from particles of food. When the necks of the teeth are kept separate, as in nature, and the gum is in normal condition, it protects the portion of enamel and the well-inserted and finely-finished gold beneath its margins so perfectly that disintegration and even discoloration are prevented.

This protection of the parts continues, unless, in after years, there be diminished circulation in the capillaries, and lack of nutrition to the gum, and it commences to return to embryonal corpuscles. Decay may then take place at the necks of the teeth, though at the age when there is usually loss of molecular tone and recession and loosening of the gum tissue, there follows deposition of lime salts under or about the margins of the gums. This deposit may incite pericementitis, and the result may be the breaking of the fine line of living matter between the epithelial and other bodies of the part, and prevention of the rebuilding of the tissue.

When operations have been performed in the manner described, and the fillings are as finely finished as suggested, they are the best for the protection of enamel against or over which the gold is placed, and for the prevention of the wedging of food upon and the consequent recession of the gums; they subserve well the purpose of mastication, and present a beautiful appearance, and the only way to keep the margins of enamel of the proximal surfaces of the teeth permanently separate and prevent extension of decay is to fully restore the contour of the tissue that is lost.

A METHOD OF ROTATING INCISOR TEETH.

By F. H. BALKWILL, L.D.S., Plymouth.

I HAVE found the rotation of incisor teeth, when required in regulation, a matter of some trouble, and having at last solved the difficulty for some cases I will describe the plan employed.

Two methods have been previously used, either rotation with the forceps, or by means of a regulation plate. To the first method there are objections. Patients dislike the pain of the operation, and, although usually successful, cases of failure have occurred, either from unforeseen difficulties connected with the shape of the roots, or from accidents, as in an instance in my own experience where an accidental blow was given the loose tooth by a playmate.

In using a plate, I have sometimes attached two gold wire springs to it, so as to press on the alternate angles of the tooth to be operated on, in the manner figured in Mr. Tomes' work, or have made a vulcanite plate having chambers in it opposite the alternate angles of the tooth, in which compressed wood has been inserted. The objections to these plans are that the leverage is slight, the resistance of the root to torsion considerable, and the crown of the tooth being wedge-shaped there is considerable difficulty in maintaining a steady pressure on the alternate angles.

After some consideration of the conditions involved, it seemed manifest that the right principle to work on was to consider the tooth as a pulley, to be rotated by a cord in somewhat the same way that a window blind roller is moved.

The following case will illustrate the method finally settled upon in applying this principle.

Fig. 2 represents the position occupied relatively by the central incisors of a lad of thirteen, which it was desired to reduce to their normal position in the dental arch.

A piece of fine silk twist was tied around the middle of

the crown of each tooth, the knot being on the front a little nearer the mesial line than the centre of each crown (see Fig. 1, *a. b*).

The two ends of one of the ligatures, say *c. d.* of the left hand in the drawing, were then passed between the centrals round on the lingual face of the tooth, and forward between the central and lateral of the same side, as shown in the drawing. It will be seen that if these ends are together pulled transversely to the long axis of the tooth the strain will be to rotate the tooth. The ends of the other ligature were brought round the other tooth, on the right in the drawing, in the same manner.

FIG. 1.



FIG. 2.



FIG. 3.



FIG. 1.—Two upper central incisors. A silk twist ligature is tied around the middle of each crown in a knot at *b* and *a*. The two free ends of each of the two ligatures are then passed between the centrals, brought round on the lingual surface, and forward between the central and lateral, as at *c, d* and *c, d*. The two ends in each case belonging to the same piece of string to be used as shown in Fig. 2.

FIG. 2.—Bird's eye view of the same teeth as Fig. 1. *a*, a small billet of compressed wood tied upon the front of the incisors by means of the free ends of silk, as shown in Fig. 1, *c c, d d*, being brought in front and tightly tied there, *c to c* and *d to d*. The wood in swelling pulls upon the ligatures and rotates the teeth.

FIG. 3.—Result of action on case drawn in Fig. 2 in ten days.

A small block of compressed willow wood was then taken, about the length of the crowns of the teeth, a quarter of an inch wide, and less than an eighth of an inch thick, the compression being in the direction of the thickness. This was placed against the crowns of the teeth so that the length corresponded with and covered the mesial division between

the teeth, one of the surfaces of its width being against the anterior surfaces of the teeth (see Fig. 2 *a*).

It will be seen that it also rested against the two knots (Fig. 1 *a, b*). The two loose ends of the ligatures (Fig. 1 *c c*) were then brought over it and tightly tied, and then the two ends (Fig. 1 *d d*) in the same manner. When the wood swelled it pulled upon the ligatures, and as it pressed upon the knots (Fig. 1 *a, b*) at the same time the ligatures could not slip, but rotated the teeth.

In the case under notice the piece of wood had to be renewed once, and reduced the teeth to the positions indicated in Fig. 3 in ten days.

THE BRITISH DENTAL ASSOCIATION AND ITS WORK.

By OAKLEY COLES.

It is a very excellent thing for the British Dental Association that we possess a journal of so much independence and critical acumen as the 'British Journal of Dental Science.' The success of this journal is just as important to the profession as the ultimate success of the British Dental Association and its official organ. No one who values the efficiency of the Association can desire that it should pass uncriticised, but one may reasonably wish that criticism should have a definite purpose and be made subservient to some useful end. Hence, it is well that the popular paper of the profession should be in a position to suggest amendments as well as find fault. But such functions of necessity imply a competent knowledge of the aims and capabilities of the British Dental Association, and these have not, so far as I am acquainted with the matter, received quite the sort or amount of discussion that is desirable.

I have no official right to enter into such a discussion at

the present time, but as an individual member of the profession I take the keenest interest in the success of its Association, and I am sufficiently unprejudiced to see that it is not perfect in its organisation or an absolute epitome of all earthly wisdom in its administration. But, then, what mundane affair is? Of course its first aim is "the good of the profession" (that delightful obliquity of speech by which we express our desire to look after each other). Next, its great purpose is to see that all the good that the Dentists' Act contains may be got out of that much abused piece of legislation. I do not feel prepared to enter into the details of this part of the work of the Association. I know, by "information that I have received," that it is essential, but frankly I confess that it possesses but little interest for me, and I believe that in this respect I am expressing the feelings of many besides myself. It is work that must be done I have no doubt, and we shall probably all reap the benefit of it, but I do not think it is the best work that we may expect the Association will do, or that it is a sphere of usefulness that will command very widespread interest. The reason for this is that its results must be chiefly of a negative character, and although some people may be rather worse off, no one will be particularly better off. If Brown and others are removed from the Register, of course it may be an unquestionable misfortune for Brown, but I do not think it will matter very much to any one else. Still this work has been taken up by those to whom we are so much indebted for most valuable service that I almost hesitate to differ from them, and after all, there may be more in it than appears on the surface.

With regard to the other aims of the Association, there can scarcely be much difference of opinion; it is only as to the way in which the details are carried out. We must, I think, see that a permanently placed central office is of great importance for all purely routine purposes. It gives a steadiness to all other departmental work that nothing else can supply. But at the same time the place of annual meeting should certainly be changed year by year, and the members in each district of the kingdom should realise that

they possess as active and intimate a connection with the work of the Association as if they lived in London. As all roads lead to Rome, so most men come to London, hence it is manifestly convenient that the permanent office of the Association should be in London, where its permanent officials may at any time be consulted.

The Association must succeed, and be the most popular organisation in the profession, and very much on account of the fact that it counteracts the centralising influences of the London societies. The best esteemed practitioners in all parts of the kingdom have an equal opportunity with their metropolitan brethren of taking an active and official part in the work and progress of Dental Surgery, whilst a ready means is created of showing esteem and conferring distinction upon those gentlemen who have hitherto been unable to take that share of professional responsibility to which their position has so well entitled them. It must also succeed, because of its great utility. The formation of local branches in all parts will do more to raise the *morale* of the profession than all the leading articles that have ever been written; and as to *Codes of Ethics*, their very necessity will disappear under the salutary influence of a free exchange of ideas and opinions at the regular meetings of the Association. It will be realised perhaps that a fee of two shillings and sixpence may be honestly earned, and that the announcement on a door-plate or card of a practitioner's name and profession is not inconsistent with self-respect or an upright conscience.

But chiefly the Association must succeed, because it is a great educational enterprise for all the profession. Very few of us realise how little we know until we begin to write, and some of us do not take in the fact even then. But we are for the most part induced to look up a subject that we propose to discuss, and in this way scattered knowledge is often gathered up by the individual for the general advantage of the many. Thus, every sectional meeting of our Association is a direct incentive to the acquisition and diffusion of technical information, and those who will not labour to prepare and write a paper may at least acquire the perhaps useful though lazy habit of hearing good lectures. All these

papers and discussions must again in turn be brought under the notice of others through the medium of our professional journals, and notably through the official organ of the Association. Here I feel I am treading on very delicate ground. I know that the Journal of the Association is looked upon as dull—sometimes as very dull—and although I have taken some share in its administration, I do not feel sufficiently vain-glorious to say that it is ever distinctly brilliant. But then look how dull the profession is—and the journal must be professional, or it is nothing. Still, all this will change in time and as we have meetings of branches published every month of the year, hospital cases, and the rest of our professional work formulated and properly reported, even an official organ may become interesting, as it certainly has been for political purposes useful. If the profession will show itself interesting to onlookers, Dental journalism will become the same, but if we never rise above the dead level of money making and possess no ambition beyond prosperity, then the future of our profession can only be to our successors as Dead Sea fruit.

THE CASTING OF ZINC MODELS.

By GEORGE WARD.

THE casting of zinc models properly is a much more important matter than most Dental practitioners imagine, and as it is only too often performed in a very unsatisfactory manner, it will not be out of place, perhaps, to give a few practical hints thereon.

The form of the plaster model is of great consequence, for it should be so shaped as to easily assist the zinc casting. First, it should have no superfluous bulk; that is, if any molars or back teeth are not to be utilised for the artificial denture, then such should be invariably cut away, and the plaster model trimmed to as small proportions as is con-

sistent with the case to be made. Further, on no account should the base be too broad or the depth of the model too great, as both base and depth are wanted in the zinc cast and not in the plaster. In fact, let all plaster models be *small*, otherwise huge unweildy zinc casts are formed; as for all practical purposes, strength and density are needed in the zinc casts and not in the plaster ones. The truth is that if zinc casts are formed on true mechanical principles, they will not only greatly aid the operator in striking up a plate, but they will never split or crack across the plate. How this is to be arrived at from neat small plaster casts I will practically endeavour to show.

Having cut the plaster model to its smallest required proportions—the depth never to exceed two inches, if that—and having stearined it and prepared the casting sand, which should always be sifted before using or damping, place the model in the centre of a casting ring, ram well home the sand on sides and top, and withdraw in the usual way. If the sand cast is true, proceed to pour in the melted zinc. Now, as soon as the fluid zinc reaches the level of the sand, place on it a hollow cone of gun-metal with a top no larger than the face of the swaging hammer, and with base in proportion. The best practical size of the hollow cone is as follows:—Diameter of base $3\frac{5}{8}$, and across $2\frac{5}{8}$ inches; top 2, across $1\frac{1}{2}$ inches; depth of cone $1\frac{3}{4}$ inches. The writer has had these cones cast from his own patterns; they are not round, but the shape of the plaster model.

As soon as ever the melted zinc reaches the level of the sand cast, place on it one of these cones, see that it is fairly in the centre of cast, and then through the top pour in the rest of the zinc until the cone is full. Before doing this, however, care should be taken to back up the edges of the base of cone with moist sand, and to hold it firmly down in its place, or the fluid metal will raise the cone and the metal overflow. The entire operation takes not nearly so long to do as to describe in writing. After letting the whole cast cool, dig it out, and the gun-metal cone will readily come away of itself, leaving as fine and strong a zinc cast as it is possible to procure, which no amount of hammering will ever split

or crack. It need not be explained to a truly scientific Dental mechanician that the denser and heavier the zinc casts are the more effectually the blows of hammer will tell on the plate to be struck up. Not only this, but the now *solid* cone-shaped head of the zinc cast will enable the blows to fall every time on the selfsame spot—a fact alone of great importance in striking up plates, and one which should never be lost sight of or neglected.

Now, the counter cast should be always of pure tin and formed thus:—Place the zinc cast on its cone end in the centre of a strong block tin casting ring, much higher than those for casting the zinc in, steady the cast with sand, then dash French chalk on the face of it, throw on more sand, ram it firmly home, and finally pound with a mallet. Smooth the top of sand, and cut away until the face of the zinc cast is laid bare in all the parts wanted for the plate. About half an inch, more or less, of the sand must be left between the cutting and the rim of casting ring. The sand also must never be cut away from the fronts of the zinc teeth. If there be any narrow-necked canines the less they are bared of sand in front the better. Also only half bare the fronts of all molars wanted for bands. When the entire zinc cast is bare of sand as wanted, pour on it the melted tin until the metal reaches the level of the sand. In a very few minutes it will cool, and a *flat*-bottomed counter cast be produced, which will be found not only to strike much better on than the old plan of immersing the zinc casts in the ladle of molten metal, but it will very easily and readily ease the plate without any danger of bending. In very large thick plate cases it is necessary to procure a corrector in lead in the same way as the tin. I have no hesitation in saying that the old plan of dipping the zinc cast in the reverse metal is the lazy Dentist's resort. A lead or tin counter cast should be always from 2 to 2½ inches deep in metal.

Now, in striking up a plate, after it is somewhat adjusted for striking, let only a few weak blows be given on the dies resting on an anvil. Then, if the plate is found to be going right, hold the two metal dies—with the plate between them—in the flat of the hand with the arm resting on the thigh,

and let the blows of the hammer fall freely on the flat base of the counter die. The true mechanical reason for this is that if the metal casts are placed on an anvil the whole force of the blows goes into the anvil, and not directly on the plate, and is liable to spring it. But the plan of giving the heaviest blows while holding the metal dies in the hand enables one to strike up the plate much sharper and clearer. When a final lead corrector is used, let the blows fall on the top of the cone-shaped zinc cast, placing both dies on an anvil. The blows must be steady but not too severe. The entire plan as recommended will get up fine sharp plates, and with as little trouble to the operator as possible. In fact, the above will be found to be the acme of zinc casting for striking plates on, and no one who is a true mechanician once having used such will ever use any other.

428, Oxford Street, W.

OXIDISED OIL OF TURPENTINE AS AN ANTISEPTIC DRESSING TO ROOT CANALS.

By GURNELL HAMMOND, L.D.S. Eng.

HAVING thoroughly tried this new preparation during some six months as a dressing to diseased roots, I can speak most highly of its efficacy. Certainly it is one of the most powerful antiseptics and oxidants I have ever used; it appears to me superior even to eucalyptus oil, and it does not irritate in the smallest degree (unlike carbolic acid, creasote, &c.) any of the delicate tissues with which it may accidentally come into contact.

The oil should be carried into the canal on a fibre of cotton wool, or better still, pumped up it with a fine broach on which a little floss silk has been twisted. The cavity should then be sealed up with wax, gutta percha, or mastich for two or three days. I generally find one or two dressings to be sufficient, indeed, in a great percentage of cases treated with it (at the Western General Dispensary

where I tried it first), the least trace of it on cotton was quite enough to render a bad root perfectly sweet.

So much has been written lately on the antiseptic treatment of teeth, that I think this a favorable opportunity to call the attention of the profession to this addition to our Dental pharmacopœia. I am indebted to the inventor, Mr. Kingzett, whose letter in the 'Lancet' first drew my attention to it, and who, at my request, at once sent me some to try. I may add that should the taste of turpentine be thought an objection to its use, it can be easily overcome by properly sealing up the cavity as mentioned above.

NOTE ON THE PRESERVATION OF CEMENT LIQUIDS.

By WALTER H. COFFIN, F.C.S.

THE liquid or jelly of the phosphate cements is known to crystallise in an erratic manner, samples which have long been clear solidifying soon after being opened and used, notwithstanding that this form of phosphoric acid is highly deliquescent, and therefore not concentrating on exposure. A possible explanation may be the fact that though the ordinary solution of ortho-phosphoric acid, sp. gr. 1.75, is always permanently liquid (Thomson), in a solution concentrated to sp. gr. 1.85 (gelatinised, but never spontaneously crystallising) solidification may be determined by the introduction of a fragment of a solid substance. A crystal of sodium sulphate, or the minutest particle of the crystallised acid, will induce complete solidification in a large bulk of liquid acid that has long remained unchanged (Cooper in 'Pharm. Conference'), and I find a particle of the solid cement when set to have the same effect. The practical deduction is to avoid contaminating the liquid with a soiled spatula or stopper, the touch of an implement after contact with the powder or previously used to mix and not perfectly free from cement, or by exposure to the atmospheric dust.

Junior Athenæum Club;

Nov. 8th, 1881.

Hospital Reports and Case-Book.

CASE OF PARALYSIS OCCURRING AFTER EXTRACTION OF LOWER MOLAR.

By F. H. BALKWILL, L.D.S., Plymouth.

SEVERAL cases have been described lately of paralysis of the mental twigs of the maxillary nerve as the result of the extraction of a lower molar. A case, which occurred to me a short time ago, gives such plain evidence of the cause of this misfortune that it may be worth recording. The following notes were written at the time :

September 10th, 1881.—Extracted the lower left wisdom tooth from a young gentleman, aged about twenty-six. After its removal the patient exclaimed that the skin about the chin on the left side was all numbed ; afterwards, that it was “ all pins and needles, exactly like having his funny-bone knocked.” He left, the numbness still continuing ; it reached backwards from the middle line of lower lip and chin to a little beyond the region of the mental foramen.

October 15th.—The patient called to say that normal sensation had returned, although a slight tingling could be felt when the parts were pressed with the finger. He thought it was about a fortnight before sensation began to improve.

On examining the offending tooth a notch was found traversing the extremity of the posterior fang on the lingual side (see fig. 1 *a*). In this notch no doubt the maxillary nerve lay as in fig. 2 *a*, and as nearly half its circumference was embraced, it must have received a severe contusion, if its surface was not actually ruptured, on the extraction of the tooth. The explanation of the condition would probably be that after the removal of the anterior molar, which had been absent for some years, the wisdom tooth had fallen forward and downward, slightly twisting on its axis in so doing ; the end of the fang had then pressed upon the infe-

rior dental nerve, the capillaries in the sheath of which had excavated the notch which was found.

FIG. 1.



FIG. 2.



Although no very practical conclusion can be drawn from the above case with regard to injury to the nerve, as such an event could neither be foreseen nor avoided, yet the possibility of such an occurrence suggests a possible cause of serious hæmorrhage. For if, as this case seems to indicate, it is mechanical disturbance caused by contact of the nerve with the extremity of the root during extraction which has caused the cases of paralysis referred to in the chin, &c., after extraction, this suggests that the same cause may occasionally produce rupture of the inferior maxillary blood-vessels which lie in the same canal, and would lead us, in case of severe hæmorrhage following the extraction, to examine the ends of the roots to see if any peculiarity warranted this inference.

CASE OF ALVEOLAR ABSCESS AND INJURY TO THE INFERIOR DENTAL NERVE.

By WILLOUGHBY WEISS, L.D.S. Eng.,
ASSISTANT SURGEON TO THE NATIONAL DENTAL HOSPITAL.

J. S—, aged 35, came to consult me on March 20th, 1880, complaining of pain and swelling on the left side of the lower jaw. The previous history she gave was that, two days before, having a swollen face, she went to a Dentist, who suggested the removal of some roots. Gas was

administered and they were removed. Since the operation the face had swollen a great deal more, she had suffered more pain, and she also discovered that the chin from a point opposite the mental foramen to the median line was almost entirely devoid of sensation, the teeth being similarly affected from the second bicuspid to the symphysis.

When I saw her, upon examination I found her face very much swollen, so much so that it was impossible to make sure whether all the roots were removed or not. There was slight fluctuation, so I made an incision in the sulcus between the cheek and gum, and pressed out a small quantity of cheesy sanious pus. I syringed the cavity with dilute carbolic acid, and lightly plugged the opening with lint, and told the patient to come in three days' time, also directing her to rinse her mouth with hot water several times a day.

On March 23rd she returned. I found the swelling slightly reduced and pus had been discharging freely from the opening. I now made a careful examination of the part with a probe and came upon a hard, smooth portion of bone, which I came to the conclusion was a part of a stump evidently pushed into the abscess sac. As she was alone I told her to go home and return the next day with a friend.

On March 24th I administered nitrous-oxide gas, and succeeded in removing a small piece of stump and two pieces of alveolus lying loose in the cavity of the abscess. I syringed the part again with dilute carbolic acid, and kept the opening patent with a piece of lint as before, directing her to rinse her mouth with warm water, with a little Condyl's fluid added to it.

I did not see the patient now for ^{scarcely} nearly a month, as she was obliged to go into the country, but at the end of a week I received a letter to the effect that the discharge had almost ceased, the pain after the first two days had disappeared, but the insensibility of the chin still remained.

The next visit I had from the patient was on April 21st. The opening had quite closed up; in the region of the operation there was still, however, a small hard lump, but

she suffered no pain; the chin had not regained its sensibility, although at times a darting sensation was felt in it.

I saw her again on June 2nd. The lump had nearly disappeared, and she felt the chin was regaining its sensibility.

The last time I saw the patient was on September 6th, 1881. Everything appeared to be in its normal condition except the chin, which had not quite recovered its full amount of sensibility, but it had progressed so well that the patient remarked, if it did not get any better she would not mind.

7, Montague Place, W.C.

CASE OF IMPACTION OF LOWER WISDOM TOOTH.

By J. S. AMOORE, L.D.S. Eng.

ON September 2nd J. M—, a pale-looking man, æt. 37, came to the National Dental Hospital complaining of pain in right superior second bicuspid, and also in the region of the lower wisdom tooth of the same side. The latter was covered by a mass of inflamed ulcerating tissue, but could be distinctly felt with the probe, the surrounding parts were considerably swollen, and the patient was unable to open his mouth to any great extent. The bicuspid was coated with tartar, but was free from caries. Judging that the trouble was due to the impaction of the third molar, the crown of which was apparently pressing forward against the second molar, it was deemed more prudent to extract the latter, as the removal of the wisdom was almost an impossibility. The man had the full complement of teeth on that side. This done, the upper bicuspid was scaled, and the patient was dismissed with directions to use hot poppy-head fomentations and to come again the next day. He appeared as appointed in a most pitiable condition. He was unable to sleep or take solid food, the stiffening of the jaw had increased, and the pain in the bicuspid was still most severe. It seemed so evident that the wisdom tooth was the cause of

the mischief that an attempt was made under nitrous oxide to open the mouth and to get at the offender, but exhaustion and fright had rendered the patient so nervous that nothing could be done under its influence, but at his earnest entreaty the bicuspid was taken out without it. It appeared healthy with the exception of some slight periosteal inflammation and on breaking it open the pulp cavity was seen to be very small but nothing abnormal could be detected. Four or five days afterwards the swelling was still on the increase, though great relief from pain had followed the extraction. A free incision was made over the wisdom tooth through the gum, and hot bread poultices constantly applied from the inside of the mouth. During the next fortnight matters continued to steadily improve, and on September 24th, though still unable to swallow solid foods, the swelling had greatly subsided, the mouth could be opened more widely, and the tooth, which since the first attempt at extraction had been completely buried, could now be distinctly felt again by passing a probe through a short sinus leading back to it. On September 30th the tooth was successfully removed by Mr. Gaddes with a curved elevator without an anæsthetic; the crown was exceptionally well developed and was free from caries. A severe paroxysm of pain followed its removal, flashing up the side of his face through the branches of the trigeminus, but was greatly alleviated by placing some wool saturated with tincture of opium in the socket. From this time his health gradually improved though the pain was at times still most severe. On his visits to the hospital the gum was painted with a mixture of equal parts of tincture of iodine and aconite (Flemming's), and some of the aconite was given to the patient with directions to smear it on the outside of the cheek over the painful parts. The use of this was attended with considerable relief. Being very anæmic and worn out by constant pain and want of sleep, he was recommended constitutional treatment, and in a week or so his condition had markedly improved. A great deal of tartar had collected on the teeth, especially on those of the lower jaw, causing some amount of irritation, which was remedied by carefully scaling them. On October 10th the patient could open his mouth

fairly wide, was free from pain, could take solid nourishment, and slept well, and he was therefore dismissed.

CASE OF FACIAL NEURALGIA DUE TO IMPACTED WISDOM TOOTH.

By C. D. DAVIES, M.R.C.S. & L.D.S. Eng.

J. L—, a police constable, æt. 32, presented himself on Sept. 16, complaining of severe facial neuralgia of three years' duration.

He had been eleven years in the army, seven of which he spent in India. For the last six years he has been in the police force.

His statement was to the following effect :—The attacks of neuralgia commenced three years ago and were attributed by him to his having on one occasion gone on duty with a defective helmet, which let in the rain and caused a severe cold. They were paroxysmal in character and for the first twelve months tolerably frequent. For the following year intervals of a month would sometimes occur between the attacks, but for the last few months he had suffered severely ; the paroxysms were brought on by the slightest irritation, so that eating, drinking, cleaning the teeth, or speaking in a cold atmosphere, caused acute pain. The pain was felt on the right side of the face, from above the level of the angle of the mouth to the vertex, and was at times so severe as to cause lachrymation and a drawing of the head down towards the right shoulder. There was tenderness near the infra-orbital foramen, above the orbit, and at the vertex. About three weeks previously he had sought relief elsewhere, and had then pointed out the second upper molar on the right side as the starting point of the pain. This tooth had been removed, but, according to patient's account, one root remained. On examining the mouth the teeth were found to be large and strong, and all present but four ; the one above mentioned, the first upper molar of the left side, and two wisdom

teeth, viz. the upper one on the right side and the lower on the left. The place from which the molar had recently been removed was partially healed, and the patient indicated the next tooth in front as the apparent source of irritation. A prescription containing chloride of ammonium was ordered, but the relief afforded was partial and temporary, and on Oct. 11th it was decided to search for the missing stump.

For this purpose an incision was made through the partially healed gum, cotton wool packed in, and the patient directed to come on the following day. On Oct. 12th, when looking for the stump to be extracted, a misplaced wisdom tooth was discovered projecting partially into the cavity from which the second molar had been removed. It was situated high up in the alveolus, with the crown directed downwards, backwards, and outwards. The gum over it was incised and the tooth removed. It was found to be of medium size, flattened at one corner, so that the grinding surface was roughly triangular in shape; the roots somewhat short and almost completely united. No immediate relief was experienced from the operation, and on the 14th the police surgeon placed the patient on the sick list to allow of his remaining at home. Until Oct. 26th the paroxysms were very severe, but on that day a great change for the better took place, and since the 27th the patient has had no neuralgic attack whatever. The wound has almost healed and the tenderness of the face has passed away.

Kilburn; Nov. 18, 1881.

SEVERE NEURALGIA OF NINE YEARS' STANDING; RECOVERY.

By CORNELIUS ROBBINS, L.D.S. Eng.

Miss P—, æt. about 36, thin and anæmic, consulted me last December for the purpose of having artificial substitutes. For some years she had travelled in tropical climates, during which period severe neuralgia, almost constant, but not

occurring at any particular hour of the day, had reduced her to a very weak condition. In the lower jaw on the right side the only remaining molar was lying obliquely forward, and so far below the normal level as not to be of any use in mastication. This, together with the fact of its being completely encircled by erosion, led me to suggest its removal, which was accordingly carried out, though with some difficulty, owing to a large amount of hyperostosis of the fangs. The excess of cementum was arranged on the anterior fang in a peculiar puckered fashion presenting sharp ridges. The posterior fang had sharply defined circular pits of absorption. These three features—erosion, hyperostosis and absorption—in the same tooth led me to suspect it as being the exciting cause of the neuralgia. Frequent doses of chloride of ammonium having been prescribed the patient was directed to return in a week. The pain was then decidedly less severe but more localised, being distinctly felt to start from an upper dead molar on the same side. After due consideration I determined to remove this tooth also, and experienced even more difficulty than with the lower; as the crown was nearly “made up” of gutta percha, and the neck completely encircled by erosion. Ultimately dividing forceps were used and the fangs removed singly, each presenting the same hyperostosed appearance. During the week which followed the neuralgic pains were more severe than before, and were accompanied with loss of sight and constant lachrymation on the same side. These conditions, however, gave way as healing proceeded, and at the end of a fortnight the patient expressed herself as being freer from pain than she had been for more than nine years. Some time after this the artificial dentures were fitted, and the last report was to the effect that no return of neuralgia had occurred.

Kilburn; Nov. 21, 1881.

THE ancient borough of Devizes is represented at present by one of our body, Mr. W. E. Keeling having been chosen mayor of the town at the recent elections on the 9th ult.

British Journal of Dental Science.

LONDON, DECEMBER 1, 1881.

DENTAL JOURNALISM.

It has been determined to give a very wide circulation to the present issue of this Journal. A presentation copy will be sent to every practitioner whose name appears in that much-abused volume, the Dentists' Register, and also to the leading Dental Surgeons in America and on the Continent. It is not put forward as a specimen of all that the English profession is capable of in the way of journalism, for unfortunately a very large proportion of the literary energy of our *confrères* must be regarded as latent and potential rather than as actual or kinetic. It is put forward, however, as a fair sample of the best periodical work that has hitherto been given to the English Dental reader.

Our ordinary readers will perhaps bear with us for a few moments while we attempt to put before the profession at large the objects at which this Journal aims, and the policy on which it is conducted. In the first place, our appeal is to the many and not to the few; our sympathies are with the profession at large as represented in its charter, the Dentists' Register, and are not confined to any clique or section. There are many into whose hands the present number will fall who must admit to themselves that it is by a turn of fortune, or perhaps through the great respect of the English legislature for the smallest of vested rights, that they find themselves members of a learned profession, rather than through any qualification derived from special education or experience. Now, our policy with regard to these members is one of trust, not one of hostility. We would rather believe that they will try to make themselves worthy of the position they have obtained by a steady striving after professional competence, and a steady adherence to the highest

standard of professional honesty, than that they are such *mauvais sujets* that they are only to be dealt with by the strong hand of the law. Those of them who are anxious to add to their knowledge from the experience of others will find in our pages many articles well adapted to their wants. The time will come when a Dental periodical will be able to confine itself to those higher problems of our science which are perplexing the more cultured minds amongst us, but till that time arrives a journal which neglects its functions as an educator of the masses of the profession can only appeal to a comparatively limited *clientèle*. Dr. Julius Parreidt, in a recent paper in a German Dental periodical, has accused us of publishing many articles which are only intended for beginners and not for men of scientific culture; but in the same paragraph he has amply justified our policy. "There are," he says, "amongst recognised Dentists many who are not yet scientifically educated practitioners, but who are nevertheless anxious to complete their education so far as it is possible, and this journal (ourselves) accordingly provides them with articles which are not intended to advance science, but only to present in various forms the results of what is already known." The same might be said of almost every professional journal, and so far as it concerns ourselves we do not wish for a moment to disclaim the accusation, but rather to adopt it as the expression of a settled and hitherto successful policy on our part.

At the same time we are anxious to keep our readers well informed on the latest advances in Dental science, and the newest improvements in Dental practice. For this we must in great measure rely on the contributions of the few active workers in the profession; but it will be the united effort of our staff to examine, report upon, and criticise all that is published in this and other countries. The series of articles which have recently appeared in our pages under the name of "The Dental Examiner" are, we think, admirably adapted to unite two main functions of a journal, expounding the old and tried methods of practice and criticising the new. It is scarcely necessary to call to mind the fact that the new is not always synonymous with the true, but our profession

has not invariably acted on that principle, and one of the most valuable functions of the Dental writer is to moderate the sway of fashion and to call back the mind of the reader to those old and approved modes of treatment which, in his enthusiasm for novelties, he is but too likely to forget. Many of the new procedures which are put before the profession show such a lamentable misapprehension of the first principles of physiology that it is necessary in the interests of truth and for the welfare of patients that they should be submitted to the driest glare of science before they are accepted for all they claim to be, and the practitioner who is conscious of his own deficiency in his power of judging them aright will do well to defer adopting them in his own practice until they have stood the test of experience and criticism. It will thus be our object to impress caution with regard to the acceptance of everything that is ushered in as a novelty, while still keeping our readers, as far as is possible, well informed as to the newest gains of science. In one word, our desire is to be in policy liberal, but conservative in practice.

MR. EDWIN SAUNDERS delivered another of his thoughtful and happy little addresses at the opening meeting of the Northern District of the Metropolitan Counties Branch of the British Medical Association on November 9th. The subject was the "Medical Holiday," and the address was more or less a continuation of one on the same topic which we had the pleasure of publishing in a recent issue. Mr. Saunders contrasted the modern medical holiday with its rudimentary stage of a generation or more ago, and explained the causes which had rendered a prolonged vacation at once necessary, proper, and possible. "A gradual widening and deepening gulf," he said, "separates this age of high intellectual activity and of rapid and brilliant scientific discovery, from those more sober and less sensational times. Success was then less sudden and less capricious, the world was not so full, the tendency to centralisation was less pronounced, there were more considerable and important towns, and the

growth of large cities at their expense was less frequently met with and far less rapid. Culture was less diffused, and science less ardently prosecuted, work was not so intense, and the general pace of progress was less rapid, and consequently less exhausting. Biological research was more gradual, new facts were brought out at longer intervals, new instruments of precision in aid of diagnosis were more sparsely introduced, and new additions to the *materia medica* were more rare, and more tardily and cautiously accepted. And as a consequence the pulses of those who helped to carry on the work of the world beat with a calmer and more regular rhythm, and the waste of tissue was comparatively inconsiderable. Thus the need was felt to be less imperative for that cessation of daily work, that break in the routine of duty, that taking off the armour and hanging up the spear for awhile, that truce in the battle of life, which is now looked on as a prime necessity and as a guarantee for prolonged usefulness." Is it not possible, however, that the fact of our liking a long holiday and being able to pay for it, has a good deal to do with our having come to look upon it as a prime necessity?

THE question as to the advisability of endowing research in Dentistry was again before the Odonto-Chirurgical Society at its last meeting, when Mr. Whitehouse's paper on the subject was discussed. Pressure on our [space compels us to hold over the full report of the meeting till our next issue, but a few words here on the course taken by the Society will not be out of place. It will be remembered that Mr. Whitehouse proposed that a prize of £50 should be placed at the disposal of the Chemical Society for the best research in the direction of endeavouring to find a suitable plastic filling, not an amalgam. The proposal was criticised in our columns at the time by Mr. Thomas Fletcher, who showed that the sum proposed would not cover half the cost of the preliminary experiments. "Successful research in useful matters," wrote Mr. Fletcher, "is already well endowed; unsuccessful research is of little if any value, and may be

left to take care of itself." The Odonto-Chirurgical Society has arrived at a somewhat similar decision, to judge from the following resolution:—"That endowment of research was only useful in exceptional circumstances; that these circumstances did not in the meantime exist in the Dental profession, but that the end desiderated by Mr Whitehouse might possibly be gained by the formation of a scientific committee, whose duty it would be to investigate into the merits of 'filling materials' submitted to them, and that from this committee should come an honorary reward, which would stamp the best filling with an unbiassed and official imprimatur, and thus secure the confident and hearty acceptance of the profession, which would be the best reward to an inventor or discoverer."

THE resolution is open to criticism from several points of view. In the first place it will be felt by many that the statement, that the exceptional circumstances which alone justify endowment of research do not exist in the Dental profession, is a little too absolute. Surely there are many unsolved problems in connection with the pathology of the teeth for the solution of which endowment offers almost the only hope. There are subjects connected with pure, as distinguished from applied, Dental science, which are exactly analogous to those intricate problems to which, some years ago, under the direction of Mr. Simon, as medical officer to the Privy Council, and more recently under the direction of the Scientific Grants Committee of the British Medical Association, the principle of endowment has been most successfully applied. The Odonto-Chirurgical Society might quite properly have put aside Mr. Whitehouse's proposal without committing itself to the rash expedient of a universal negative.

THE remainder of the resolution, however, appears still more open to unfavorable criticism. It is true that the Odonto-Chirurgical Society has but followed the example of

its sister society some time back. But the success achieved by the Odontological Society in attempting to adjudicate on white fillings was not so great as to encourage a repetition of the experiment. The less scientific societies mix themselves up with matters of pure commerce the better. The risk of discredit to them is much greater than the likelihood of benefit to the profession whose interests they guard. There is danger of their name being set alongside those of reverend baronets and medical quacks, if they give an imprimatur to a preparation which may any day be superseded by a better one, and the uniform excellence of which they can never in any case guarantee. If good wine needs no bush, certainly a good white filling needs no official stamp.

THE Executive Committee of the General Medical Council had some important Dental business before it at its meeting on the 11th ult. The great question of expurgation stands over for the consideration of the whole Council, but there cropped up minor points connected with the admission to the Register of persons apprenticed before the passing of the Act, and of practitioners who were deterred from applying for registration by what they now hold to be an erroneous interpretation of the famous Clause 6, Section *c*. With regard to the former class, it was resolved that persons who had completed their apprenticeship before January, 1880, be admitted to the Register, but that the other students be recommended to apply to the Licensing Bodies for examination. It was also resolved to suggest to the Licensing Bodies, that such students should be admitted to examination, under modified conditions. The consideration of the other class of cases was deferred, and the question obviously cannot be finally settled till the Council has given its decision on the debated clause. A letter from Professor Turner, of Edinburgh, pointing out the necessity for more precise regulations as to the education, preliminary education, and registration of Dental students, was also deferred for further consideration.

MESSRS. UNDERWOOD and MILLES have been further prosecuting their researches into the influence of bacteria in Dental caries, and have obtained some new and interesting results. The subject will not be discussed at the approaching meeting of the Odontological Society, as was at one time arranged, but as the investigation is one which has wide scientific bearings, and is of interest to all students of biology, it has been thought advisable to bring it before a less limited audience than that which meets in Leicester Square. The Royal Society is the place for it.

DIFFICULTIES threaten the course of Dental legislation in France. M. Ferry, the minister who was known to take interest in the matter, and owing to whose initiative the Bill for the purpose of regulating Dental practice was drawn up, has been compelled to retire, as our readers are well aware, and it is very doubtful whether his successor will attach equal importance to Dental affairs. But, besides that, the chief Dental bodies in France have petitioned against certain portions of the scheme. The *Société Syndical Odontologique* objects to the clauses which would render the passing of an examination compulsory on all Dentists who had been in practice for less than ten years. It has begged M. Le Fort, who, as we stated in our last issue, acts as the chief adviser of the Medical Faculty on the subject, to annul the retrospective action of the Bill as likely to act prejudicially to vested interests, which had in many cases been acquired as the result of great labour. The other petition, emanating from the *Cercle des Dentistes de Paris* and the *Chambre Syndicale des Dentistes Français*, manifests still greater dissatisfaction with the Bill. It entreats the legislature to simply reject it altogether, and to maintain, provisionally, at any rate, the *status quo*, or if it should be felt necessary to proceed to immediate legislation in Dental affairs, to pass a measure on the lines of the English Act. To pass the retrospective clauses of M. Le Fort's proposed Bill would, so runs the petition, be a monstrous iniquity.

Our Dentists Act apparently has more admirers in France than in the land of its birth.

THE Edinburgh Dental Hospital and School opened its winter session on the 1st of November. The number of students at present on the roll is eleven, six of these being new entrants, a very gratifying addition, and in excess of the most sanguine expectations. This northern school, we are glad to find, is already gaining repute for the thoroughness of its teaching.

WE learn that among the candidates at a recent Dental election was one who bears, perhaps, the oldest name in the profession, and certainly one of the most respected. If the electing body passed over an old, tried, and trusted friend for a new and unknown man we are at a loss to account for the fact, unless we believe the rumours we hear from time to time that the camp of the Association is not without one or two half-hearted friends who do not seem to love either the diploma or those whose staunch consistency has won for it its present position.

ODONTOLOGICAL SOCIETY.—At the next meeting, on December 5th, Mr. Coleman will read a paper on “Economical Processes of Preparing and Administering Nitrous Oxide Gas.”

DR. ALBERT J. KUTZ, formerly a pupil of Dr. Marshall Webb's, has recently commenced the practice of his profession at 14, Henrietta Street, Cavendish Square.

The Dental Examiner.

[*Note.*—Dental materials and appliances intended for notice in the “Dental Examiner” should be sent to the Editor at 11, New Burlington Street, W. All preparations not generally known should be accompanied by a lucid description and a clear statement of their composition. The formulæ supplied *will not be published* unless a written permission is given by the maker.]

ADHESIVE AND NON-ADHESIVE GOLD FILLING.

IN our last issue we exhibited, through the courtesy of Messrs. Ash and Sons, drawings of a set of pluggers, designed by Dr. J. H. Redman, for adhesive gold fillings in approximal cavities, and although the experienced practitioner will pause before he enters upon the use of a new instrument, yet it is advisable that the student should commence his practice with the best forms designed by the best operators, although most practitioners will have their own patterns, those that time has made familiar to them.

Foot-shaped pluggers can hardly be considered new, and although those under notice may differ somewhat in the angle at which they are bent, they depart but slightly from many in daily use, and resemble in most respects a set lately introduced by Dr. Finley Thompson. While it must be allowed that fillings that are made adhesively are very useful, and in many cases matchless, we are sorry to see so great a stress laid upon this form of operating to the exclusion of the non-adhesive plug, which to our mind commends itself to the study of all. Non-adhesive fillings, it must be allowed, are more durable, take a shorter time to make, are not so easily affected by moisture while making, and fit more closely the cavity, owing to the extra pressure, than those made adhesively. The time that a stopping takes to complete may be considered a secondary matter to the operator, but it is not so to the patient. It is true this class of filling is more difficult to make, but as a great saving of time is effected it should be studied and practised, more particularly by all ambitious students. The non-

adhesive filler will also find the advantages of commencing his plugs by this method and concluding them adhesively, more particularly when he desires to build out the cusp of a tooth, but we cannot too forcibly condemn the patching up of defective fillings by plastering them over with adhesive gold. It is to this branch of practice—mixed gold fillings—that we look for the higher classes of work, and to our mind the best results.

It is very remarkable that so few practitioners exhibit pluggers for non-adhesive gold (for the two classes of instruments are thoroughly distinct), while every average stopper seems to think that his adhesive foil pluggers are unique, and generally brings them forward as something new. We should like to know what percentage of adhesive and non-adhesive fillings are inserted at our Dental hospitals, for we fear that the non-adhesive plugs will be found to represent but a small minority. It has also been remarked by some of our best fillers that it is much more difficult to find a good English manufactured gold suited for non-adhesive work than an adhesive foil, and it is equally remarkable that most of it—I mean the adhesive—is imported from America. After trying specimens from the London depôts we are obliged to acknowledge that the malleability of the American foils is greater than that manufactured in this country. This remark does not apply to adhesive gold in all its varieties, many of which are quite equal to those supplied by our neighbours across the Atlantic, but students are brought up to attach too much importance to adhesive gold fillings, with all the complicated preparations for the adjustment of the rubber dam, &c. We give our preference to non-adhesive plugs wherever they can be made, and we know that our opinions have the approval of some of the best stoppers in the world. In conclusion, we should add that the make, temper, and finish of Dr. Redman's pluggers can hardly be improved upon, and we must say that we think them well suited for the class of fillings they are intended to make.

Dental News.

ON PASSING EVENTS.

By "PHOSPHOR."

TWENTY YEARS AGO.

THE first meeting of the Odontological Society reminds us that professional work has now set in, and the opening assembly of this representative body was in every way a suitable commencement of the session. The attendance of members was very large indeed—certainly all the leading practitioners in London and many from the country put in an appearance. The lecturer was not a Dental Surgeon, but he has taken a great interest in Dental proceedings, and Dr. B. W. Richardson has been so identified with Dental literature that it is always agreeable to have him amongst us, and more so to hear him speak. He was received with unusual warmth, and seemed to feel the heartiness of his reception. His paper may not have contained anything strikingly new, but it had an excellent quality, it drew out the opinions of others, and it certainly will be allowed by those who were present that all the speakers who took part in the discussion were at their best, and never spoke with greater freedom or more to the purpose. Good common sense seemed to influence the Society, checking all wild theories or hazardous conjectures, so that the proceedings were prolonged for more than an hour longer than the usual hour of termination, and conducted with a vivacity that never for a moment flagged.

Dr. Richardson reminded his hearers that it was over twenty years since he had addressed them before, and that under very different circumstances. For himself, he said that he felt like a modern Rip Van Winkle after his long sleep, with this difference, that he looked around him and he heard the old names mentioned, but they were now associated with young faces. Some of the old faces, it is true, might still be recognised, but it was sad to think that the features of many only now lived in memory.

Listening to Dr. Richardson's well-worded and well-delivered paper, I could not help asking myself whether so great a change had really been made in our modes of

practice, our treatment, and our operations. The lecturer dwelt upon views then entertained and still unchanged, upon theories now received, and conclusions arrived at similar to those favourably received twenty years ago. Improvements have been made and mechanical arrangements modified. New materials have sprung into use, many of them, however, as rapidly to be contemned. A new and better class of instruments is manufactured, and in the preservation and the repair of teeth a wider experience has been gained, and a better basis to work upon arrived at. But of all the changes that twenty years have brought about, none so conspicuously call for recognition as the improved tone that pervades and animates all classes of our profession. When Dr. Richardson spoke of twenty years ago he no doubt held in his memory our past social condition, and the same ideas must have been running through the minds of many. Collected under the same roof we had the workers in all those discordant discussions that are now allowed to remain with the past. The old and the young, the advocates of a separate existence and of a union with surgery. Those who desired to be isolated and those who desired to be attached, came with outstretched hands to receive and to welcome each other. All now acknowledge the College of Surgeons as the root from whence shall germinate, till time shall be no more, those branches that, springing from one parent trunk, unite us as in one family, so that education, like the sap that circulates through all, may freely run to the furthest extremity, showing itself alike in each bending bough and each opening leaf, and taking with it that purifying power and that liberality which knowledge alone can give and secure to us all.

NATIONAL DENTAL HOSPITAL—ANNUAL DINNER.

THE Annual Past and Present Students' Dinner was held at the Guildhall Tavern on the 16th ult. The members of the staff, many of the past students, and most of the present, nearly seventy in all, sat down to dinner, Mr. S. LEE RYMER, the President of the Institution, occupying the chair.

After the usual loyal toast, Mr. W. H. ASH proposed "The Committee of Management." Judging, he said, from the work of improvement they had lately carried out in the hospital premises, and the increase there had been in the

number of patients attending, he could not but compliment the Committee on their untiring and well-directed energy.

Dr. STRONG (Croydon) replied.

The CHAIRMAN proposed as the next toast "The Medical Profession," coupling with it the names of Dr. Carpenter and Dr. Richardson. He said that he felt confident that in such an assembly the toast would be most cordially received, as all present had had more or less intercourse with members of the medical profession. Those in practice as Dental Surgeons could testify to the ready co-operation of medical men with them in consultation, and it was a matter of history that, in the course of the proceedings which had led to the consolidation of the Dental profession and to its recognised legal position now as compared with the chaotic state of past years, immense assistance had been rendered by the faculty of medicine, for which they were deeply indebted. With regard to Dr. Carpenter, twenty-five years had elapsed since he took the chair at the London Tavern on the memorable occasion of the first public meeting of the Dental profession ever held; it was on the 22nd September, 1856. He was happy to recognise several friends that evening who were also present on the occasion referred to, amongst others, Mr. Kempton, who had so ably filled the office of Honorary Secretary to the Metropolitan School of Dental Science, which was the predecessor of the present College. Dr. Carpenter, in the early days of the reform movement, had given valuable practical advice as to the course of procedure; educationally he had assisted them by delivering lectures of extreme value at the old College of Dentists, and now he was amongst them this evening to evince his continued interest in their prosperity. As to their old friend Dr. Richardson, who, like Dr. Carpenter, had especially attained to great eminence as a sanitarian, he need scarcely remind them of the eloquent address which he delivered at the opening of the Metropolitan School of Dental Science in 1859, when in his concluding remarks he so forcibly dwelt on the conditions of success in study, pointing out that these rested not so much with the teacher as with the inner self. He (Mr. Rymer) was sure that the excellent advice then tendered had not been thrown away, to which fact was owing the good position to which many of their students had attained and were attaining. Again, at the College of Dentists in 1866 the Doctor delivered his memorable course of lectures on the "Origin of Diseases of the Teeth and Maxillæ." These important lectures had been published, and were still highly appreciated for reference. It was only the other day that, after a

considerable interval, Dr. Richardson had again come amongst them educationally at the Odontological Society, where he was welcomed as an old friend, reappearing, as he himself humourously observed, in veritable Rip-Van-Winkle fashion. Of the genial kindness and consideration of both Dr. Carpenter and Dr. Richardson to students not a word need be said, and it only remained for him to ask them to heartily drink to the toast which he had the privilege and pleasure to propose to them.

Dr. ALFRED CARPENTER (Croydon), in responding to the toast, said that the chairman had not mentioned the fact that it was Mr. Rymer who had inaugurated that meeting at the London Tavern, and that its great importance was due to his public spirit.

Mr. STEPHEN HOOLE then proposed "The Health of the Medical Staff," and alluded individually in eulogistic terms to the several members.

Mr. WILLIAMS responded.

The next toast was "The National Dental Hospital and College," given by Dr. ALFRED CARPENTER. He said: The aim of medicine was now to inquire into the causes of diseases, and into methods of preventing them, and such should be the aim of all Dentists. These were notably the days of conservative surgery, and necessarily so in Dental Surgery. Every practitioner in this specialty should consider himself bound to make notes of the diseases of the teeth, and try to get together connective histories, so that from such data very important results should be deduced. Patients should also receive instruction as to how to manage their families so that their children might be placed under favorable conditions for the development and preservation of their teeth.

Dr. ATKINSON (Kew) gave "The Past and Present Students." In the course of an interesting and amusing speech he spoke of anæsthetics, and referred to an incident which went to prove that the principle of anæsthesia was of far more ancient date than was usually imagined. He then gave an abstract from a history of the ancient kings of Persia written by the poet Firdousi. In the year 950, nearly 1000 years ago, a Persian warrior of great renown named Tāl was betrothed to a princess named Rúdabéh. The match was pronounced by all to be a most happy one, and the astrologers foretold that their offspring would be a hero of matchless strength and valour. When Rúdabéh was advanced in her pregnancy she suffered extremely from constant indisposition, and Tāl was in the deepest distress on account of her precarious state. At last he recollected the

feather of the Símurgh, and following the instructions he had received, placed it on the fire. In a moment darkness surrounded them, which was, however, immediately dispersed by the sudden appearance of the Símurgh. "Why," said the Símurgh, "do I see all this grief and sorrow.

"Why are the tear drops in the warrior's eyes?
A child will soon appear, of mighty power,
Who will become the wonder of the world;
But not in nature's course, unaided, born!
The mother must be drugged with soothing wine,
Till sense forsakes her, and she feels no pain;
Then must her side be opened, and the infant
Drawn through the wound. This being done, close up
The deep incision with the nicest care,
And take the herb, which I shall give to thee,
Prepared with milk of musk, and rub it well
Upon the severed flesh, and pass this feather
Along the part, and health will be restored."

The advice was strictly followed, and the result was as foretold. Rúdabéh endured no anguish, and never was there so prodigious a child as the Símurgh brought forth into the world. It was interesting to note from the above extract that the principle of the operation known as Cæsarian section was also in some measure understood in those days.

Mr. F. ROSE replied for the past, and Mr. BATE for the present, students; the latter warmly thanking the officers of the institution for the very kind and ready way in which their help was always proffered to them.

Mr. WEISS proposed "The health of the Dean," which was received with great acclamation, and Mr. GADDES replied.

After the health of the visitors had been proposed and responded to, Mr. STOCKEN gave "The Dental Schools." He referred to the late increase in their number, as schools were being now instituted throughout the land. He considered it a most satisfactory and propitious omen, boding well for the future of Dentistry. It was educated practitioners that were wanted, and the two metropolitan schools were not more than the necessities demanded.

Mr. OAKLEY COLES then proposed the health of the Chairman, and Mr. RYMER replied.

The proceedings were enlivened by a selection of vocal and instrumental music, Mr. CHARLES DAVIESON officiating at the piano.

APPOINTMENT.

WORMALD, THOMAS, L.D.S.I., has been appointed Honorary Dental Surgeon to the Oldham Infirmary.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

THE EXPURGATION OF THE DENTISTS' REGISTER.

To the Editor of the 'British Journal of Dental Science.'

SIR,—It is at all times easier to make irresponsible criticism than to refute it, and when you say, in your strictures on my letter, which appeared in your number of October 15th, that you consider that any attempt to correct the Dental Register by seeking the removal of certain names is inexpedient, you no doubt take up a strong position, and lay down an opinion which, from your editorial point of view, is virtually unassailable. But, sir, the case is far different with those who have been for years engaged in the business of Dental reform. They see in this attempt to retain certain names on the Dental Register, and, under the shelter of a clumsy legal quibble, the invitation held out to men who had withdrawn their names from the Register to replace them, part of a determined attempt to discredit the Dentists' Register in the eyes of the medical and Dental professions, and, if possible, in the eyes of the public at large. They also know that the recent extraordinary decisions of the Medical Council regarding Dental registration have induced many men who, in connection with some trade such as hair cutting or watchmaking, are practising Dentistry of a sort which seems to find favour with a few influential members of that body, to apply for registration under the new and, as I think, erroneous reading of the Dentists Act, on the plea that they have been deterred from seeking registration by the form or schedule which, in the first instance, they were called upon to fill up, and other such grounds.

The British Dental Association was formed for certain specific purposes, and in their Memorandum of Association it is distinctly stated that one of their purposes is "the maintenance of the spirit and provisions of the Dentists' Act, by such lawful means as may be necessary." Now, sir, the men who have advocated the principles of the Dentists Act are not likely to back out of their engagements on the grounds of expediency alone. If they did so you probably would be one of the first to take them to task for such conduct, and

no doubt you would then feel you had a very strong case indeed. They may be unable to do all they wish to do towards remedying the present incorrect state of the Register, but wherever or whenever failure may come, I believe it will not be till every measure now within their reach, or which may be placed within their reach by the Dental profession shall be exhausted, that they will feel satisfied in having done their duty, and that they will sit tamely by and allow the introduction of an evil which bids fair to increase and to perpetuate itself far beyond the bounds entailed by the most liberal consideration of any number of vested interests.

We have not, in our recent action, striven for originality, but rather for what is best for the Dental profession, and how best to utilise the very limited means at our disposal; and if I venture to cite the example of the Incorporated Law Society and Pharmaceutical Society as instances of powerful bodies undertaking a similar work I may show further lack of originality, but not I think a lack of common sense in taking two such successful bodies as examples. The British Medical Association, too, has lately spoken pretty plainly as to the necessity of a properly organised scheme of medical defence.

The prosecution of some obscure person who practises medicine illegally may, in your opinion, as in the opinion of many of the leaders of the medical profession, be an undignified and unbecoming act on the part of a profession so eminently respected, and whose credentials are so well recognised that any preference for quackery on the part of the public cannot be shown in ignorance; but who in the medical profession would or should be silent if these same persons were to try, by a side wind, to gain a position on the Medical Register? The jealousy with which the Medical Register is guarded was shown in the absurd opposition which was made to the progress of the Dentists' Bill through Parliament, and now that we have the Act, we are decried for taking steps to make our register ordinarily correct.

I shall not venture to encumber your pages with all that might be said on behalf of our action, and perhaps the opening remarks of my letter may be taken as an index of much that is better unsaid for the present, but I hope I have written enough to show that the action of the British Dental Association is not without some show of reason in its favour. Our fight may be long, and after recent excitement may in comparison be silent, but it is nevertheless progressing and tending to the elevation of the profession as surely as has

been the work of the last twenty years. Thanking you in anticipation,—I am, &c.,

JAMES SMITH TURNER,

Hon. Sec., B.D.A.

[We have only space for two remarks on Mr. Turner's able letter. The first is that a due regard to expediency is one of the first essentials of statesmanlike action. The second is that, so far as our reading has gone, we are not aware that the British Medical Association has ever given a vote in favour of the principle of medical defence. It is true that such a vote has been passed by a district of a branch of the Association, but we do not attach such importance to the opinion of a few local medical practitioners, as Mr. Turner and the Editors of our contemporary, the Association journal, appear to do—EDITOR.]

To the Editor of the 'British Journal of Dental Science.'

SIR,—May I beg a small space in your valuable pages for the expression of my views on a subject that has been much before us of late, and upon which the minds of thinking men in our profession have been exercised in no small degree. I refer to the expurgation of the Dental Register, and the raising of our professional status. I fear the purification of the Register is a hopeless task, owing to the stolid indifference, nay, even *opposition*, of the Medical Council, who, speaking by Dr. Quain, characterise us somewhat amusingly in such terms as “teeth drawers and teeth makers,” a sweeping assertion to make, and one needing explanation. But we will not stay to throw a sop to Cerberus, for I have yet to learn that Dr. Quain and his colleagues—although they are doubtless very excellent and learned gentlemen—can have any preventive influence on the advancement of our profession or in any way hinder us in our forward march.

Thus we pass on to consideration of other remedial courses. If we (I speak of Dental licentiates) cannot avoid, owing to the absurd provisions of the Dentists' Act, being classed on the Register with some hundreds of chemists, smiths, barbers, &c., who have succeeded by some manœuvring in getting their names enrolled as *bonâ fide* practitioners—of whom we must believe Dr. Quain had a vision when speaking of us as above—we can at least put a greater distance between us by taking a medical degree in addition to our surgical diploma. I am one of those who think that Dentists of the present day confine their sphere of usefulness within too

limited an area. It cannot be denied that innumerable cases come under the cognisance of the specialist in our department, which he cannot treat thoroughly by surgical operation or drugs locally applied, but—being quite competent to do so—should strike at the root of the matter, and treat on the most orthodox principles of medicine any disease which may thus come under his notice as a predisposing cause of dental or oral defects.

But here comes our difficulty. We are told that a surgical diploma does not legally qualify us to treat cases medicinally, hence the necessity for our taking a degree which will enable us to do so with legal protection. In America the degree of Doctor in Dental Medicine is granted; why should it not be so in England? Surely qualified Dentists should now bestir themselves, and, combining, memorialize the authorities of a university to grant this special medical degree to those who, having obtained surgical credentials, are willing to study for the extra degree, and qualify themselves to practise Dental medicine.

I make these suggestions to you Mr. Editor, and through your pages (by your kind permission) to the profession, hoping to have the views of others on the subject.

I am, &c.

J. WAITE PRYOR, L.D.S.I.

DENTAL REFORMS IN FRANCE.

To the Editor of the 'British Journal of Dental Science.'

SIR,—Will you allow me to call your attention to some rather important errors in your account of the scheme for the gratuitous Dental inspection of the primary schools in Paris. If you read my petition carefully you will see that, though the idea originated with me, and was submitted by me alone to the Municipal Council, I have never had a thought of demanding any kind of hierarchial supremacy over my nine colleagues, each of whom, though recommended by me, will remain absolutely independent in his own sphere of action. Each has enrolled a number of assistants sufficient for the care of his own section, but none of us will exercise control except over his own assistants. I should indeed have been doubtful about the good results of any organisation which involved the subordination of the other Dentists-in-chief to one of their number, and should have taken good care not to propose such a scheme.

As to your criticisms with regard to the gratuitous nature of the scheme, allow me to say: First, that if I had asked for any remuneration for my colleagues and myself, the Council would probably have rejected the petition or ad-

journed it till a more favorable season, *i.e.* till the Greek calends. Secondly, that the time that we shall give gratuitously will be repaid years hence in increase of practice. Thirdly, that it is absolutely necessary that no payment should be exacted from the parents of the pupils, if one wishes to popularise those hygienic precautions, as to which the French public, at any rate so far as the working classes are concerned, has hitherto shown itself absolutely opposed.

You have also, it appears to me, misunderstood the *obligation*. The parents are not *obliged* to have their children inspected, and have full liberty to exempt them from the inspection of the municipal Dentist. But the *wish* of the parent becomes an obligation for the child, who otherwise would frequently refuse to submit to the necessary operations.

I shall be much obliged, sir, if you will insert these corrections in your next issue. It would be very painful to me if, in default of rectification, my nine colleagues should think that I wished to assert over them a pre-eminence, such as never entered into my head, or appeared in the text of my petition.

I now pass to the project for the regulation of Dental practice in France, which interests the Dentists of other countries no less than ourselves. You have published extracts from the writings of MM. Lefort and Magitôt. If you wish to make your readers fully acquainted with the question I must ask you to read the enclosed document, wherein you will see that the two chief societies of French Dentists (comprising about 225 members) have addressed a petition to the legislature, with the view of opposing the governmental project which the late minister, M. Ferry, had been induced to sanction by a handful of intriguers, influenced by far from praiseworthy motives. This petition has been subscribed to by the *Chambre Syndicale des Dentistes Français*, and by the *Cercle des Dentistes de Paris*, in joint session.

I am, &c.

E. TAILLEBOIS.

Paris : Nov. 17, 1881.

[M. Taillebois has misread our remarks, which neither attributed to him a position superior to his colleagues, nor stated that there was any *obligation* on the part of the parents to have their children inspected. As to the gratuitous nature of the scheme, we can well understand that it was in Paris a *sine quâ non* of success, but in our opinion it would be a distinct objection to the establishment of a like scheme in London, where the provident system has

obtained such great success. We have alluded in another column to the proposed regulation of Dentistry in France.—
EDITOR].

MARITIME MASTICATORS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—With all due deference for the opinions of your correspondent, and with an experience in the profession of nearly thirty years, and in several of the largest seaport towns in the United Kingdom, and among sailors of all nationalities, I still maintain my ground, and say, if you place a young man with a perfect set of teeth on board a ship and let him soak his biscuit in tea and bolt his junk, it will soon ruin his teeth; if the teeth are originally delicate so much the worse. Any one with the least common sense must see that the result of this system of feeding is to rapidly engender decay. I could enlarge on the cause of this, but do not deem it necessary to take up more of your valuable space.

Yours, &c.,

JAMES HARDIE.

To the Editor of the 'British Journal of Dental Science.'

THE ECLIPSE DENTAL AMALGAM.

WITH reference to your article in the 'British Journal of Dental Science' of 15th October, on the "Eclipse Dental Amalgam," introduced by Mr. John Jamieson, Junr., I have to state that, having employed it extensively since its introduction some years ago, I have had opportunities of testing it as regards contraction, colour, and solidity, and feel assured that it will compare favorably with any other amalgam at present before the profession. I am, &c.,

DAVID TAYLOR, M.B., C.M., L.D.S., &c.,

Lecturer on Dental Anatomy, Andersonian
University, Glasgow.

[These remarks confirm what we have already advanced (November 1st) in the pages of the 'Dental Examiner.'—
EDITOR.]

VACANCY.

DENTAL HOSPITAL OF LONDON.—Post of Dental House-Surgeon vacant on 1st January next. Hours 9 a.m. to 2 p.m. daily except Sundays. Salary £40. Candidates to send application to Hon. Sec. at the Hospital, Leicester Square, on or before Monday, December 12th.

To Correspondents.

Prospective arrangements.—The various departments of this Journal will be carried on as heretofore, during the coming year, but it may interest our readers to learn that we have made arrangements for publishing in our issue of January 1st, 1882, and succeeding numbers extracts from *Vernon Galbray*, with notes and references by the author, Mr. Felix Weiss; that in the pages of the *Dental Examiner* a series of articles will appear on "Dental Rubbers," with remarks upon their purity, strength, and time in vulcanizing; nearly every variety of English, French and German rubber manufactured for Dental purposes will be examined separately and their uses clearly indicated. Specimens are solicited from all English and foreign makers. We have also promises of the following articles amongst others: "On Mr. Coleman's Theory of the Eruption of the Teeth," by Mr. Arthur Underwood; "On Conservative Dentistry," by Mr. Gurnell Hammond; "On Diseases of the Antrum," by Mr. J. M. Ackland; "On Scientific Enquiry," by Dr. John Smith; and "Practical Hints for Young Practitioners, by an Old One"; Cases by Mr. C. B. Stoner, Mr. F. H. Skeet and others.

ANSWERS TO CORRESPONDENTS.

"J. H. B."—There is no Dental legislation affecting the whole of the United States. In some Dental practice is quite unrestricted, in others it is subject to regulations analogous to those in force here. In the latter States a position on the British Dentists' Register would give no privileges. As to your suggestion it must be remembered that the 'Dentists' Register' is not the same as a Dental directory, a publication which is as yet a desideratum.

"STUDENT."—It has been decided by the Executive Committee of the Medical Council that students in your position must pass an examination.

Communications have been received from Messrs. W. Bowman Macleod (Edinburgh), J. Waite Pryor (Truro), W. H. Skeet (New Zealand), F. H. Balkwill (Plymouth), W. H. Coffin (London), Edwin Saunders (London), T. Wormald (Oldham), Willoughby Weiss (London), James Hardie (Alloa), E. Taillebois (Paris), F. A. Huet (Manchester), A. J. Kutz (London), W. E. Keeling (Devizes), David Taylor (Glasgow), W. Whitehouse (London), G. W. Watson (Edinburgh), Oakley Coles (London), A. A. De Lesserts (Aberdeen), J. S. Amore (London), Walter Harrison (London), J. Healey (Bolton), G. S. Skliros (London), C. D. Davies (Kilburn), Cornelius Robbins (Kilburn).

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the BRITISH JOURNAL OF DENTAL SCIENCE.

British Journal of Dental Science.

No. 334. LONDON, DECEMBER 15, 1881. VOL. XXIV.

ON SCIENTIFIC ENQUIRY.

AN ADDRESS DELIVERED TO THE ODONTO-CHIRURGICAL SOCIETY,
ON NOVEMBER 10TH, 1881.

By JOHN SMITH, M.D., F.R.C.S.,

PRESIDENT OF THE SOCIETY.

GENTLEMEN,—I rise with feelings of much gratification to address you as President of the Odonto-Chirurgical Society for the ensuing year. And in doing so I do not think it incumbent upon me, or likely to be desired by you, that on such an occasion I should detain you with an effusion of any particular length. It was Sydney Smith, I think, who used to say that in antediluvian times a speech of three or four hours' duration was neither here nor there, but that orators of modern days ought to remember the flood, and study brevity. I entirely coincide with the views of the reverend gentleman, and, in the present circumstances, shall follow his advice.

Some little difficulty at first occurred to me in deciding upon what topic the opening address before a society of this nature should turn: whether it ought to be a retrospect of what had been done by this as well as various other similar bodies during the past, or whether it might not be more in keeping with our first meeting here that any remarks should be made to refer rather to some subjects connected with the future; and leaning towards this last view of the matter, I resolved upon offering a few brief and discursive observations, relating prospectively in certain ways, and in some considerable measure, to those objects and the mode of carrying them out, which necessarily appertain to such

meetings as ours in this place, matters which, I think, you will agree with me it might be well to keep in view as essential towards the prosperous working of this or any other scientific society. And I must here premise that in advancing such observations, I do so more as a summary or a recapitulatory sketch of what you already know than as subjects having in themselves anything new or original.

The chief end of a society of this nature, I need not say, is the promulgation, the diffusion, the communication of useful or interesting knowledge, especially in its own department of science. This may be effected in one case through the medium of conversation, in another by actual demonstration, and in a third by studied and formal written communications. Further, such knowledge may be itself derived from the three sources, first, of investigation and research; second, of direct observation, and casual or incidental experience; and thirdly, from that source which affords perhaps more scope and opportunity for general discussion and the expression of opinion, namely, where the contribution is founded upon certain plausible theories or specious hypotheses, originating in the mind of the contributor, or, it may be, on some occasions, only existing in his exuberant fancy or fertile imagination.

But whatever may be the mode adopted in conveying such information, and whatever may be the source from which it has originally sprung, its value will always be proportionate to, or altogether dependent upon, the nature and the amount of the evidence adduced in its support, and the integrity and amplitude of the manner in which such evidence has been examined and investigated. And this brings me to what I may set down as the main subject I have here to submit to the Society, namely, a consideration of some of the peculiarities of those data at our disposal for the determination of enquiries in the physical sciences, and the method according to which such data ought to be regarded and made the subject of deliberation.

Among the different species of evidence to which the enquirer in natural science looks for information, there is scarcely any form presented more frequently, or possessing

greater importance, than that of statistics—in other words, a group of absolute and similar facts multiplied till it becomes so large as to justify the acceptance of some given conclusion to be drawn from it.

Quality of our data.

In speaking before a society of this nature, I need not enlarge upon the value of data of this kind, *when accurate*, in the advancement of medical science and its associated branches. But it may be well, on the other hand, to keep in mind that evidence presented in such a shape is always open to serious errors, mistakes, and fallacies, from which the precise and unmistakable demonstrations applied to mathematical reasoning are completely free. And it is this consideration which should enjoin upon us the most watchful caution, and a prudent reserve and hesitation, in adopting or accepting as conclusive, in anything like a rash or precipitate manner, results founded upon such a method of enquiry.

In mathematical reasoning the mind is compelled to accept as absolute certain evidence which, in the nature of things, admits of no manner of doubt whatever. In the physical sciences, however, our conclusions are drawn or reasoned out from data which are in many ways fallible. But bearing this in mind, and refusing to accept any conclusions until the data upon which they are founded are verified by observation and experiment—until every condition necessary for trusting to conclusions drawn from them is complied with—if we are careful that no omission of any essential consideration, no admission of what may be spurious and accidental, no neglect of the balance of probabilities—no such sources of error are overlooked—the mind can little more hesitate to accept the evidence of such data than it can to admit the truth of a mathematical demonstration.

Reasoning from data.

Unfortunately, however, while on the one hand that completeness and authenticity of data here implied is by

no means always secured, neither, on the other, is the mode of investigating such data all that could be desired in scientific research. Bias, partiality, prejudice, self, in the one case; and ill-founded, ill-assorted, ill-digested evidence, in the other, lead to many errors, and consequently to the reliability and the teachings of statistics being so very generally questioned and mistrusted as they are.

It is much more difficult than at first might be supposed to avoid a certain prepossession in favour of one's own opinions in reading the data available for scientific research. The mind inclines to some one or other side of the question, till, insensibly to ourselves, everything seems favorable to those conclusions we inwardly desire or wish to be the true ones. We resolve to maintain—impartially, of course, as we suppose—our own opinions to be correct; but our high estimation of them leads us to dress and set them off, as John Locke long ago wrote, to the best possible advantage, misinterpreting or changing the meaning of what is pertinent to the question, and often adducing, as if in support of it, ideas foreign to, and which neither elucidate nor strengthen its real position, but help to carry conviction in our favour.

Instances of this are to be found in every department of science, but we need not wander beyond the domains of medicine for its illustration. From the remotest records in the history of that art down to our own times the transient and ephemeral nature of so-called doctrines, founded on propositions thus imperfectly established, is abundantly and manifestly exemplified. The decline of Grecian medicine after the death of Hippocrates showed, at that early period, the evil of departing from the matter-of-fact method of reasoning on the sure grounds of observation and experience adopted by the father of medicine, and the short-lived lustre of many of the speculative and conjectural, although ingenious assumption, of the theorists and systemists, who have ever and anon flourished since his day, bears convincing testimony in the same direction.

Paracelsus, Stahl, Hoffman, Boerhaave, Gall, Spurzheim, Hahnemann, brilliant as were their theories, and replete

with many valuable truths as were their systems, are now names of little else than antiquarian interest. With many other talented and ingenious thinkers—aiming too much at establishing their own pet notions to be correct, their great powers absorbed in proving what *they wished* to be the fact, misdirecting the grand truths of many of their arguments to prop up and sanctify some theory which was the idol of their worship—they have only attested that science is not permanently or creditably advanced by bolstering up individual opinions or adopted systems, but by a simple, rigid, and unswerving search for truth.

Time required for confirming our conclusions.

Even, however, with every care exercised, both in regard to the sufficiency of our data and the fidelity exercised in their examination, it would appear as if the work of time were over and above required for the more complete apprehension and full mental digestion of the information thus afforded. The mind of man is slow in making acquaintance with things, and in taking in new truths, and this must be kept in mind before we can safely or justifiably pronounce, even after every care bestowed upon them, that our conclusions are final, exhaustive, and exact. Certain evidence, and the first opinions founded upon it, may, at the moment, appear incontrovertible; but as years roll on and afford time for mature reflection, and as other and additional truths arise side by side with those already existing, we may find, on going over the self-same field once more, with such super-added elements to assist us, that all its former aspect is now changed, and appears altogether defective and fallacious, teeming with oversights and most strangely full of errors. Thus the rich storehouse of incontestable facts, opened up in anatomy during the fourteenth century, by Mundinus of Bologna's first dissection of the human body, followed by such early workers as Vidijs, Sylvius, Vesalius, Eustachius, Fallopius, Varolus, Casserius, Cesalpini—names which will endure as long as anatomy itself—has, for ages, afforded materials upon which no end of theories, in regard to the

brain, the heart, the uterus, the respiratory, and all other organs, have, over and over again, from their remote day down to our own, been advanced and accepted, to be only, and before long, rejected and found wanting. Time, and little more than time, was required to discover that what had been approved, and apparently substantiated with axiomatic incontestability, from time to time, was, each in its turn, found to be palpably erroneous, altogether misunderstood, and a complete mistake; and it becomes us to remember this in advancing those views, and opinions, and conclusions, necessarily entailed to the communications incident to a society such as ours, in order to their enduring with that stability, and power, and credit, which we all would naturally desire.

Danger of too limited data.

There is another source of fallacy to be guarded against in the reading of statistics and such data, which is limiting our search exclusively to what may be little more than one factor in the aggregate range of the enquiry; *i.e.* either through inadvertence, or intentionally neglecting the consideration of collateral facts, and thus failing to grasp, to its fullest extent, the teaching of such evidence as may be more immediately before us. This is allied to that sort of sophism which logicians term an *imperfect enumeration* or *false induction*, when from a few experiments or observations we infer general theorems and universal propositions. An over credulity in the assertions of others forms an important element in this species of error, and often in this way becomes a source of much trouble and confusion in the advancement of science. Rooted errors and old prejudices, have ever been, and still are, most difficult to remove. Common opinion, as it is termed, is most sturdy in its own defence, and only too ready to appeal for support to some vague standard of general belief, or even to attempt substantiating its creeds in direct violation of the most ordinary laws of nature. Yet we find such popular notions and current beliefs, in many cases, treated as if they were scientific truths. And it too frequently happens, while carefully

securing the validity of one set of facts, that we neglect to make equally sure of others, accepted and adduced on the same footing, and as part and parcel of our data; we neglect making sure that we are not taking them for granted with an overweening and too implicit confidence.

I have spoken of the necessity for exactitude in our data, of fidelity in their examination, and of time being required for confirming the correctness of our conclusions. Each of these considerations, as I have said, it is essential to keep before us in framing the communications and conducting the debates incident to a society of this nature; since, without some such careful watching of the operations of the mind, our perception, apprehension, and conception of things becomes indistinct and erroneous, our judgment of them false, and our reasoning and argumentation ill-founded and misleading.

And while offering a few condensed thoughts on such subjects, many instances of their application will no doubt occur to any one who reflects upon them. As an example, we may take the alleged deterioration of health in modern times, the appearing among us of new types of disease, the outcry as to increased prevalence of others, and among such themes, more specially appertaining to our own department, even the asserted increase of dental disease. These are a class of subjects frequently brought under notice of practitioners; and certain fractional statistics, certain special and adventitious circumstances in modern life, are, as we know, constantly suggested as affording some clue by which the mystery is attempted to be solved. Feeding, domestic surroundings, luxury, medicines, drainage, hereditary tendencies, a host of hypotheses are advanced, each of which has its strenuous supporters, and often a very considerable show of reasonableness about it. But, if we think of it, there is in reality far more than any one of these to be taken into account, if we would fairly judge in any questions of this kind. It is not alone the surroundings of the present day that affects the health, or the diseases, or the mortality of our population. Besides looking at what goes on around us, we should require to lift the curtain that shuts off the past, and hides and helps us to forget the times gone by. We

should require to wander backwards from the present time, through generation preceding generation, and mark the innumerable, the enormous changes through which society has travelled since the dawn of modern civilisation; some of the incidents and phases of the way, its ups and downs, the storm and sunshine, the good and evil, met with on that long and up-hill road, over which what is termed its "march" onwards to our own time has been accomplished. And if we would take these things into account, as well as, and in addition to, all the ills attendant upon our present artificial mode of life, and especially the growing tendency to congregate humanity in such swarms within our large cities, it would at once be apparent that almost unnumbered causes were at work as the instruments of deterioration. A large proportion of these data are, however, suppressed or misinterpreted, and a premature and unsound conclusion is the result. The delicacy of the rising race is talked of; that certain diseases are commoner than they were; that their prevalence is unaccountable, or due to this or that innovation, and so on, is thrust upon us, forgetting that under the accumulated agencies of which we have spoken the whole physical character of the individual must have, so far, been modified and altered, even in what now is its state of health, and that there is, consequently, nothing very remarkable in its diseased conditions being also modified, and in some new ones being added to them. The wild flower, once defiant of the heats of summer or the snows of winter, is now an artificial cultivated plant, difficult, perhaps, to keep alive, far less to maintain in health or vigour, with all the fostering shelter and most careful supervision of the hot conservatory.

I do not here, however, bring forward these matters in any controversial way, but merely as illustrative of my remarks, nor, need I say, am I intending either to confirm or confute the correctness of any allegations in regard to disease or mortality put forward at the present day. I merely adduce them as topics, which we, as practitioners, very frequently hear attempted to be explained, in a way, exemplifying the reasoning, popularly adopted in discussing such questions.

The tabulating of statistics.

Not to occupy much more of your time, however, allow me to allude to one other point, in addition to data in the abstract and the mode of dealing with them, and that is—What would be desirable, if possible, in the recording, the compilation, the tabulating of statistics.

It may be considered chimerical or impracticable that so much time and trouble should be expended in the keeping of statistics or in the classification of cases, such as we have to deal with, as would render our case-books so widely and absolutely reliable, as scientific data, in all their bearings, on any question respecting them, as we could desire. We could, in our own sectional department, only approach doing so by records which could never, in the meantime, be expected to be kept. Without even attempting to exhaust the catalogue of all that would be demanded, we should, beside the mere class of tooth—the operation, the age, and sex—of such cases as come under our case, require to tabulate, among other things, and in some uniform and systematic manner, the history, appearance, constitution, and habits of the patient; whether sickly or ill-fed; whether the offspring of the diseased or vicious; the inhabitant of squalid or badly drained or pestilential districts; the trade worked at, the hours of employment; the wants, the vicissitudes, the excesses, the moral defects of our patients. It is utopian, I say, to expect that the time and trouble involved in such records should, under present circumstances at least, be devoted to them. But I have no hesitation in saying that it is to the growing tendency towards keeping such minute details that modern medical science owes much of its advancement; and it is hopeful that this tendency prevails. To it are due in great part much of our advances in the etiology and treatment of disease. Errors have been thus detected, the existence of unsuspected causes demonstrated, difficulties in harmonising what used to appear as conflicting evidence removed, and interesting and startling results achieved, which a very few years ago would never have been dreamt of; and assuredly

it is an end that we should see to being kept in view in the interests of our special calling.

Have such researches an elevating tendency ?

Lastly, and in a few words, a consideration of some of those departments of thought not only tends to a more sound mode of reasoning on such subjects as we may take up, but to a salutary development of the mental and reflecting powers, and fits for the more efficient discharge of the duties which a professional life invariably entails. What is gained is not merely knowledge—it is mental discipline. The method demanded of us in drawing conclusions from data in the physical sciences is a training which not only enlarges the faculties of the mind, but is essentially a healthy one in developing those characters of observation which are of the greatest practical importance.

And, moreover, a clearer and more perfect understanding of the phenomena of what we meet with in the natural sciences is to ourselves personally always a matter of satisfaction and delight. In saying so, I speak not in my own words only, but in the spirit of those who have, with more power and eloquence, advocated such views as I have now here sketched out.

It has been said that such scientific study is opposed to the æsthetic faculties, and that, by imposing a restraint upon the imagination, they lower the mind to the prosaic standard of everyday life, and unfit it for the appreciation of what is higher, what is poetic, what is beautiful. But these authorities to whom I appeal tell us it is not so. It is the physical sciences alone, they tell us, which open up to our comprehension the truths of the wide universe around us ; and whatever is true is beautiful. It is a wide field—so wide, that no one mind can, any more than ourselves, obtain an adequate knowledge of more than a very, very small district of it here and there. Each may select those portions of it, such as opportunity may offer or inclination suggest. But on whatever spots the choice may fall, they are to be trodden with careful steps, and passed over with observant

eyes. In this way scientific inquiry becomes a gain—the acquaintance with its mysteries an unspeakable privilege; and as new truths find access to the mind, so much the nearer does it reach to the altitude and wisdom of the great first cause, more and more clearly encompassing and comprehending the mysteries, and unveiling the wondrous beauty and fitness of the world around us, seeing and realising the perfection of nature's laws, and withal becoming better as we become wiser—looking, as we are thus constrained to do, from nature up to nature's God.

DOUGHT WE EVER TO ALLOW TEETH OR STUMPS
GIVING RISE TO CHRONIC ALVEOLAR ABSCESS
TO REMAIN IN THE MOUTHS OF PATIENTS SUFFERING FROM, OR HAVING A TENDENCY TO,
TUBERCULOUS DISEASE OF THE LUNGS?

By GURNELL HAMMOND, L.D.S. Eng.

DENTAL SURGEON TO THE WESTERN GENERAL DISPENSARY, AND TO THE
NATIONAL DENTAL HOSPITAL, ETC.

I HAVE asked myself this question many times, but the interesting discussion at the meeting of the Medical Society of London in October last has decided me on putting it to the profession.

The case before the Society was that of a diseased knee-joint in a patient suffering from phthisis. It was brought forward by Mr. Thos. Bryant, of Guy's Hospital, who said that:—"On admission, May 12th, the knee was much swollen; tissues very œdematous; joint quite disorganised. Patient looked very ill and thin; had very bad cough; dulness over both apices; 'cogged' inspiration; prolonged expiration; bronchial breathing; had had a good deal of hæmoptysis and muco-purulent expectoration; great sweating at night, &c."

The leg was amputated on July 7th, and on July 14th patient was discharged convalescent. "He had then no

night sweats, did not spit blood, and looked comparatively well." Mr. Bryant, remarking on this case, said:—"I am convinced that the presence of local suppurative joint or bone disease, if it does not primarily originate lung trouble, does much to aggravate it and hasten its progress." Also that:—"On removal of the local suppurative disease the lung mischief which may have been progressive is retarded, if not cured."

The other eminent surgeons present seemed to be unanimous in the opinion that timely operative interference was of the greatest use in these cases, and quite agreed with Mr. Bryant in every particular.

Now, I venture to think that if suppurative disease in joints or bones be productive of so much harm to patients affected with phthisis there can be no doubt that the chronic abscesses of the alveoli and jaws so very frequently met with, having their origin in badly decayed teeth and necrosed stumps (especially when the products of inflammation have undergone "caseous" change), must also be powerful factors in the causation of concomitant lung mischief in those patients having a predisposition to tuberculosis.

Certainly, where *one* person suffers from joint disease, *thousands* suffer from chronic bone disease in connection with carious teeth.

The Dental officers of our great public institutions will, I am sure, all bear me out when I say that there is scarcely a mouth to be seen amongst the poorest classes in which there is not one or more of these chronic abscesses, and indeed they will also be found in a great percentage of the mouths of our higher class patients (for it must be remembered that we only see the *bravest* members of a family, and that the timid ones are probably letting their teeth almost drop out rather than consult a Dentist). Again, the fact that the male portion of the population generally go on until actually driven by suffering to have their teeth extracted, if taken together with the assertion made in most text books on medicine that being of the male sex is a predisposing cause of consumption, is certainly an argument in favour of my theory.

I do not propose to enter into the many vexed questions in the pathology of phthisis, or the manner in which local suppurative disease may lead to infiltration of the lung tissue, lardaceous disease of the liver, &c. (as, of course, all Licentiates in Dental Surgery who have passed through the curriculum have studied this disease among the others during their course of medicine and general hospital practice), but merely to draw the serious attention of Dental Surgeons to the question forming the title of this paper, and, I trust, will open a discussion in these columns, whereby we may learn the views held on this subject by the most scientific members of the profession.

We all know the great difficulty often experienced in inducing a delicate or nervous patient to submit to an operation so formidable (to them) as the removal of all the stumps from the mouth, either with or without the aid of gas, &c. (which, if my conclusions be correct, ought in many cases to be insisted on), but considering the terrible havoc which this fearfully insidious disease—consumption—works on the population of this country in particular, it becomes the duty of every member of the great profession of medicine to unite in earnest endeavour to investigate the causes of, and to try, if possible, to assist in mitigating, if not in stamping it out.

Leinster Square, Kensington Gardens, W.

Hospital Reports and Case-Book.

CASE OF LUXATION OF INFERIOR MAXILLA.

By CHAS. B. STONER, D.D.S., Brighton.

HAVING filled the left inferior dens sapientiæ for a lady, æt. 28, on the removal of the rubber dam she remarked that she could not close her mouth. On examination it proved

to be a complete bilateral luxation of the inferior maxilla. The reduction required great force, but was quickly effected in the usual way with my thumbs and a linen cloth. I at first intended to apply a four-tailed bandage, but the patient being a very intelligent lady I thoroughly explained the case, and after a few hours, finding that there had been no tendency to recurrence, I abstained from the use of the bandage. The filling was finished eight or ten days after, and the case has terminated satisfactorily.

It was the ninth filling, including two in its fellow, which tooth fortunately remained, the other four molars being missing. If the fellow dens sapientiæ had also been missing I should have moulded some composition and padded with cotton, which I believe would have met the requirements of the case.

The causes I believe to have been, first, one of those damp miserable days that European Dentists have to make the best of; this rendering it necessary for the mouth being kept open wider and longer than would otherwise have been the case. Secondly, being obliged to use a clamp instead of a ligature on account of the shortness of the tooth, thus keeping the mouth open more or less during the whole of the operation.

CASE OF REPLANTATION.

By W. H. SKEET, New Plymouth, N.Z.

SOME few years ago a young lady called on me to have the upper central incisor replaced. The original had been broken by a fall, but the stump remained, and had been the cause of constant "gum-boils," as my patient called them. On examination, I found the arch perfect and the rest of the teeth in a splendid state of preservation, but the stump was very sensitive from periostitis and the effects of the abscess. My patient would not allow me to

treat the case in the usual way, but insisted on having the stump extracted. Having removed it, I found the stump quite sound below the margin of the gum, and it struck me that if I were to replant it I might be able to pivot on a new crown. I persuaded my patient to allow me to make the trial, and after preparing the stump for the reception of the pivot, I syringed the cavity well with tepid water, and then, after applying carbolic acid and glycerine, I returned the stump to its place. I gave my patient a lotion (Tr. Iodi, Tr. Arnicæ, āā ʒj., Acid. Carb. gtt. iij) to be painted on the gums twice daily. There were no bad symptoms, all soreness subsiding after the second or third day, and in a month I pivoted the crown on. Two years subsequently I saw the lady, then married, and the tooth was still doing good service, the operation having proved a complete success.

CURE OF VIOLENT NEURALGIA FROM RETARDED ERUPTION OF WISDOM TOOTH.

By H. B. MOSELY, L.D.S.I., Leeds.

I HAVE recently attended a gentleman, assistant to a surgeon in this town, who has been suffering from such severe neuralgic pains for the last few weeks as to require injections of morphia to obtain relief. On making an examination of the mouth, I came to the conclusion that his sufferings were caused by reflex irritation from the retarded eruption of the wisdom tooth. I extracted the second molar, and, on probing the socket, was gratified to distinctly feel the crown of the wisdom. The neuralgia has now entirely ceased.

British Journal of Dental Science.

LONDON, DECEMBER 15, 1881.

THE YEAR.

THE year which is now drawing near its end will probably be long remembered in the annals of Dentistry. To the minds of some, perhaps, the year which witnessed the passing of the Dentists Act may seem a more important epoch in the history of our profession. But rate the recognition of the State and the possession of rights and privileges as highly as one may, one cannot fail to remember that the range of our Dentists Act is very limited compared with the range of our professional and scientific interests. As with all scientific callings, our civil relations are unimportant compared with our place in the hierarchy of the sciences; just as the biggest Act of the Imperial British Parliament cuts a very poor figure beside a theory, which, like that of tides, has a point of contact with every sun, star, and planet throughout the realms of everlasting space. Thus in our esteem the year which has seen Dental science worthily taking its place side by side with other branches of scientific medicine, towers head and shoulders above the year which merely consolidated and gave protection to the civil interests of our profession over a certain limited area of a not unlimited hemisphere. It is no doubt very easy to exaggerate the importance of the compliment paid by the medical to the Dental profession during the International Congress, and in some quarters there has been a very ridiculous puffing up of feathers over it, but, spread-eagleism apart, there is no doubt that the subjective effect on our profession of any form of scientific recognition cannot fail to be beneficial. As Burke has said,

“The degree of estimation in which any profession is held becomes the standard of the estimation in which the professors hold themselves.” So we prize the recognition of the medical profession, not so much because it represents the feelings of a very agreeable, fairly refined, and comparatively well educated section of the community, as because it will tend, by its reflex influence on ourselves, to diminish that lack of scientific and social assurance to which there is a rather widespread tendency among us.

I. DENTAL POLITICS.

With these few introductory remarks we may pass on to review the events of the past twelve months in their political, scientific, and literary aspects. Politically the evolution of the Dental profession has been steady, but not so catastrophic as some of our reformers apparently desire. A year ago the ‘British Medical Journal,’ which of late has posed as the mouth-piece of the British Dental as well as the British Medical Association, airily exclaimed that “all irregularities in the working of the Dentists Act would soon be remedied and the public be placed in possession of a register that would be subject to but slight alterations year by year.” The prophecy has not as yet attained fulfilment, nay, fulfilment appears almost further off than ever. At the beginning of the year it was still unknown in what sense the Dental Committee of the General Medical Council would report as to the cases of alleged incorrect or fraudulent registration which had been submitted to them in the previous July. Early in February, however, the General Council met, and it was then found that the Dental Committee had come to the conclusion that there was no evidence of fraud in any of the cases which they had inquired into. This finding being conclusive on the General Council, it remained for the latter body to determine whether, in the absence of fraud, the names in question should be struck off the Register on the ground of incorrect description. To aid the Council in coming to a decision on this point, an opinion had been obtained from the Solicitor General and Mr. Muir Mac-

kenzie, which was to the effect that the Council need not inquire as to the *legal* right of any practitioner in Dentistry to practise Medicine, Surgery, or Pharmacy. After a long debate the Council resolved that the evidence contained in the report of the Dental Committee was not sufficient to show that the persons concerned were not at the time of their registration *bonâ fide* engaged in the practice of dentistry, and the Council was therefore not prepared to order the removal of any such persons from the Register. It was also resolved that the persons whose names had actually been removed from the Register at their own request should be restored without fee, on application being made to that effect.

For the moment the British Dental Association appeared to acquiesce in the decision of the Council, and confined their attention to Chemists' and Druggists' apprentices; but in the June number of the Association Journal the whole question was reopened in a most able article, and a month later subscriptions were solicited with the view of obtaining a fresh legal opinion on the subject. Several hundreds were promised to the Legal Expenses Guarantee Fund, and at the annual meeting of the Association in August, Mr. John Tomes had the satisfaction of reading an opinion given by Sir John Holker, Mr. R. S. Wright, and Mr. G. A. R. Fitzgerald, to the effect that the words "practice of Medicine, Surgery, or Pharmacy" in Section 6, Clause *c.* of the Dentists Act, referred to legal practice of their professions by duly qualified persons. This opinion, which was directly opposed to that of the Solicitor General, was sent to the Executive Committee of the Medical Council, but that body resolved that the onus of taking action upon it ought to rest with the British Dental Association and not with the Medical Council. Here matters must remain until the meeting of the Council next year, when it is possible that the additional evidence supplied by the British Dental Association may lead to a reversal of the decision of February last; but it is only the most sanguine minds in the Association that can hope to see the Council taking upon itself the responsibility of action in the matter. Should the Council ratify the decision of

its Executive Committee, the Association will we fear find itself face to face with a grave responsibility, which only an absolute unanimity in the feelings of its representative board would warrant its undertaking.

As a set off, however, against the disappointment, which the leaders of the profession must have felt at the failure of their efforts to purify the Register, the Medical Council at their sitting in April determined to admit to the Register a record of certain surgical qualifications as evidence of the possession of a higher degree of knowledge—a decision which will give a stimulus to the acquisition of a more general diploma than the Dental license, while removing the sense of injustice which many Dental practitioners had felt at the absence of their higher qualifications from the Register.

II. DENTAL SCIENCE.

It is pleasant to pass from these political contests to the calmer, if not altogether unagitated, atmosphere of science. The proceedings of the Dental Section of the International Congress naturally dwarf the other scientific doings of the year, but they are of such recent occurrence, and have already been recorded at such length in these pages, that they may be now dismissed with very brief mention. The meetings of the Section were for the most part well attended, and in some cases crowded, but it is to be regretted that their International as distinguished from their Anglo-Saxon character was not more pronounced. The general feeling as to the discussions was a very mixed one; those who compared them with the work of other sections, felt that the proportion of verbiage to facts was somewhat extravagant; those, on the other hand, who compared them with what previous experience had led them to expect, were very agreeably surprised at the tone of serious thought which now and then made itself heard through the flowing accompaniment of commonplace. On the whole, for a young branch of science which has all the world before it, the proceedings were full of future promise. The most important papers were by Dr. Magitôt and Dr. Finley Thompson on "Replantation," neither

quite satisfactory ; by Dr. Arkövy on "Devitalizers of the Tooth-Pulp ;" by Messrs Underwood and Milles on "The Effects of Organisms on the Teeth ;" and by Dr. Walker on "Premature Wasting of the Alveoli ;" the last three being all examples of serious scientific inquiry. Socially the special entertainments given to the Dental Section, marked as they were by an admirable sense of proportion, were highly appreciated, and will be long remembered by those who had the privilege of being present at these.

During the past year the two chief societies connected with our specialty—the Odontological and the Odonto-Chirurgical Society—have been actively carrying on their functions, especially in regard to that very important part of their work, the exhibition and discussion of specimens. But, besides this, some valuable communications have been read, amongst which we may mention Mr. Charters White's paper "On the Histology of the Taste-Bulbs ;" Mr. Stocken's "On the Value of Certain Remedies used in the Constitutional Treatment of Inflammatory Conditions of the Vascular Tooth-Structures and of Neuralgia arising therefrom ;" Mr. David Hepburn's "On Chronic Suppuration connected with the Teeth," and Dr. Richardson's "On the Causes of Caries." An admirable paper on secondary hard formations in the pulp cavity was read before the Odonto-Chirurgical Society early in the year by Mr. G. W. Watson, and Dr. Smith has recently delivered before the same Society the striking Presidential Address which we publish in another column. The various Students' Societies have also been continuing their excellent work with undiminished energy, the effect of which will no doubt be felt in future years in a still further improvement in the papers and discussions of the parent societies. A record of the year's progress would be incomplete without a brief mention of the long threatened resolution which has been at length adopted by the Odontological Society to the effect that after November 1st, 1882, no candidate shall be eligible for admission to the Society unless he possess some satisfactory diploma or degree.

III. DENTAL LITERATURE.

There has been considerable literary activity in the Dental profession during the past year, chiefly, however, in the direction of periodical publications. The most important new book is Mr. Coleman's 'Manual of Dental Surgery,' which however, in spite of the great labour evidently spent in its preparation, can hardly be said to have met with more than a *succès d'estime*. Mr. Oakley Coles' new edition of his well known book on 'Deformities of the Mouth' has well maintained the reputation of its author, but in its most original portions must be regarded rather as a *mémoire pour servir* than as a finished treatise. Mr. Arthur Underwood's 'Surgery for Dental Students,' as we have said before, does not aim high, but hits its mark better than some efforts of stronger, not to say longer, bows. Very useful practical works have also been published by Mr. Thomas Fletcher and Dr. Foster Flag. The year's growth in Dental periodical literature has been somewhat too exuberant. New journals have appeared in England, France, Germany, and America, only one of which, however, the 'Ohio State Journal,' has as yet shown itself capable of taking a leading position; of the others more than one we fear owes its birth to the studied neglect with which the lower ranks of the profession are being treated by the higher. The new German journal is, as its name, 'Vierteljahrsschrift des Vereins Deutscher Zahnkünstler' implies, the organ of the Dental *Mechanics* of Germany; and we can assure our readers that the pretensions of the Dental *Surgeons* (or *physicians*, as the phrase goes in Germany) are not invariably treated with the most charitable consideration in its pages. The new French journal, 'L'Odontologie,' is also the organ of the more democratic party in the profession, and there is probably not much love lost between it and its elder and its more aristocratic contemporary the 'Gazette Odontologique.' No one can view this new feature in Dental literature without regret, or without the fear that it may be the first sign of a schism which would still further weaken a profession, never as yet of very robust constitution. Luckily so far this repulsion between the two

poles of the profession has not made itself felt in England, except in the separation of some of our more gaseous elements, and we ourselves shall always look upon it as our most valued function—as indeed it ought to be the function of every journal—to draw together divergent interests, and to cultivate that feeling of sympathy and mutual respect between all its members without which no profession can live in public honour and esteem.

THOSE who made the acquaintance of Prof. Holländer, of Halle at the International Congress will be glad to hear that when the new Dental School at Geneva was in course of organisation the President of the Swiss Republic offered him a post on the teaching staff, together with a professorship at the university and the directorship of the proposed Dental polyclinic. Dr. Holländer, we learn, has decided to decline the offer, as he has been officially promised that the arrangements for Dental instruction at Halle shall be improved in various directions. It will be felt that Germany has acted wisely in thus tempting one of her ablest Dental teachers to remain in the service of the Fatherland. The reputation which Prof. Holländer has acquired amongst the Swiss is further shown by the fact that out of the fourteen Dental students who have recently matriculated at Halle two hail from the play-ground of Europe.

DRS. LEGROS and MAGITÔT have collected and published in a separate form the papers on the "Evolution of the Dental Follicle in the Mammalia," which have from time to time appeared in the 'Journal de l'Anatomie.' The volume, which is illustrated by admirable lithographic plates, will be fully reviewed in these pages in due course.

DR. JULIUS SCHEFF, of Vienna, has been employing a paste containing iodoform as a pulp dressing, and has arrived at

the provisional conclusion that it is a very much better agent than arsenical paste for annulling the sensibility of painful exposed pulps which have not yet passed into the suppurative stage, and for rendering them capable of bearing a temporary filling. Out of fifteen cases in which be applied iodoform, eleven were entirely successful, and in none was there even an approach to periosteal irritation.

WE have like other people our lighter moment, and we always look forward to the Annual Dental Hospital Students' Dinner, where we forget all the year's fighting and writing and hurl compliments to and fro at each other and explain to our mutual satisfaction the "exceptional advantages we enjoy." The President of the late Congress made an excellent chairman of the dinner, and the diners numbered nearly one quarter more than last year. The selection from the 'Pirates of Penzance' was capital, and Mr. Hepburn's device of transforming his choir from pirates to delicate maidens by means of some æsthetic fans most effective. What with music, dinner, and pleasant speeches, the Dental world was lulled on the evening of the 2nd of December into a scene of peace and goodwill, which we hope will last through the winter.

THE 'Dental Record' is still apparently suffering from a plethora of metaphor. Commenting on Dr. Smith's recently delivered address on "Scientific Enquiry," it advises the investigator to "take the spirit of it in his right hand"—a piece of very ghostly, not to say alcoholic, counsel.

THE following are the numbers of the higher qualifications which have up to the present time been added to the Dental Register:—F.R.C.S. Eng., 2; M.R.C.S. Eng., 30; L.R.C.P. Lond., 4; F.R.C.S. Ed., 1; L.R.C.S. Ed., 2. Of the Dental diplomas hitherto registered, 352 are from the English

College, 20 from the Edinburgh College, 33 from the Glasgow Faculty, and 252 from the College of Surgeons in Ireland. Of the latter several more will probably be found to have been entered when the Register is published, for the number of this year's diplomas which have been registered falls far short of the number of diplomas which have been given.

THERE still seems to be a good deal of heartburning on the question of the Irish diploma, and we are deluged with letters expressing the different sides of the question. No one will deny that it is high time the Irish College fixed some limit to the number of its licentiates *sine curriculo*. Even granting all that is said as to the stringency of the examination and the high character of the candidates, it must be admitted that to continue to give Dental licences without limitation of time or number cannot fail to injure the value of the Irish and every other diploma. In the interest of its own licentiates, if in no one's else, the Dublin College ought to draw the line and that right soon. There have already been too many "absolutely the last's."

HERE is a suggestive cutting from the advertisement columns of a Birmingham paper.

HAIRDRESSERS.—Wanted, a good General Hand. One who understands the chiropodist's work and dentistry not objected to. Good references.—Apply, &c.

It may be worth while to remind some of our readers that the next meeting of the Odontological Society, which is the Annual Business Meeting, will be held on the *second* Monday in January, and not as in the case of other meetings on the first Monday in the month.

The Dental Examiner.

[*Note.*—Dental materials and appliances intended for notice in the “Dental Examiner” should be sent to the Editor at 11, New Burlington Street, W. All preparations not generally known should be accompanied by a lucid description and a clear statement of their composition. The formulæ supplied *will not be published* unless a written permission is given by the maker.]

MATERIALS EMPLOYED FOR TAKING IMPRESSIONS OF THE MOUTH.

It might seem at a first glance that nothing new can be written on this subject, but we are firmly persuaded that the very simplest of our operations may profitably be reviewed occasionally, for if the reader learn nothing new, his opinions may be confirmed and that constitutes a very important fact in giving assurance to our daily proceedings.

Many very excellent papers have been written upon this subject, more particularly about taking impressions in plaster of Paris, and we are quite willing to allow that many advantages can be ensured in extreme cases by using this material. Beeswax has also had its day, but even when mixed with a small quantity of powdered gum sandarach and paraffin, which makes it set harder when cold, it is far inferior to the modelling compositions now in vogue, most of which are composed of gum, kowrie, French chalk, and stearine. So much attention has been devoted to this subject of late, that we have now several compounds well fitted to take impression of any ordinary mouth, but we give the preference to that made by Mr. James Hinds, of Coventry. He introduced his compound called “Godiva” in 1869, and we believe it was the result of a long series of unsuccessful experiments in his endeavour to find out a new base for artificial teeth. Soon after its introduction, Mr. Hinds was able to present to the profession four preparations of different degrees of hardness, all of which have been impartially tried and have been received with favour. As

our examinations do not admit of any hearsay conclusions, we think it but right that we should enter more fully into a description of these four varieties with the peculiarities appertaining to each.

No. 1 is soft, and recommended where any tenderness exists in the mouth ; it is also valuable in cold weather and takes a sharp and accurate impression at a low temperature, requiring about two minutes before withdrawing from the mouth. It may be used successfully where the operator has to leave his own surgery, as it can be softened easily.

No. 2 is medium, and well fitted for ordinary use ; it takes more heat to become soft and requires a little shorter time to set than No. 1.

No. 3 is the hardest and the quickest setting preparation manufactured. For edentulous cases and when the weather is very hot it is especially recommended. It is also valuable where very great absorption has taken place, and for cleft palate if manipulated in the following manner :—An ordinary impression is taken in a thoroughly suitable tray, and then removed from the mouth and allowed partly to set. Where additional thickness is required, the part is slightly warmed over a spirit lamp and a piece of No. 1 added, and once more returned to the mouth. By this means the deepest depressions can easily be taken, and in lower cases where teeth are standing in the front, the sides may be accurately modelled, no matter how extensive the absorption.

No 4 is extra soft and easily softened in warm water. It is useful in taking bites and also for utilising and restoring the properties of old composition which may have been some time in use. Equal parts may be mixed with a spatula in very hot water and then kneaded up until the whole becomes sufficiently soft and equal throughout. Care should be taken that every particle of plaster is removed from the softened impression after running the model, and it should also be rolled upon a stone slab to keep it free from hardened particles of burnt composition if by carelessness such should become mixed with the whole. Many practitioners prefer to warm the cakes by placing them before the fire or over a

spirit lamp; by this method the character of the material remains longer unchanged, but the fingers should be touched with vaseline while manipulating it, and care should be taken that the composition is not burnt.

The "Godiva" is also used in many ways for taking fac-similes of geological specimens and copies of mouldings and other ornaments. It has also been recommended by some members of the medical profession for forming pessaries, more particularly in peculiar cases, and a paper was read on this subject by Dr. W. Reid, of Glasgow, during the meeting of the British Medical Association at Ryde in September last, and its uses for such purposes were acknowledged.

We have only occasion to add that Mr. James Hinds has most liberally supplied large quantities of the most useful kinds to both the Dental hospitals, and is most willing to give every information as to its uses both for Dental and medical purposes.

On the 1st of January a series of papers will be commenced upon "Dental Rubbers," with remarks upon their purity, strength, and various uses, together with some original methods of working, &c.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

ORDINARY MONTHLY MEETING, DECEMBER 5TH, 1881.

THOS. A. ROGERS, Esq., President, in the Chair.

MR. DAVID HEPBURN, of Edinburgh, was, at the suggestion of the Council, unanimously elected an Honorary Member of the Society.

EXHIBITION OF SPECIMENS, ETC.

MR. GEORGE PEDLEY showed a drop-bottle of his own contrivance, and also a tell-tale for gas cylinders.

He exhibited also a first upper molar to the root of which

a rough piece of bone was attached. Mr. Pedley noticed this unusual addition directly the tooth was extracted, and at once surmised that it was a piece of the floor of the antrum. On passing a probe into the alveolus he found that there was in fact a free opening into that cavity. When the patient returned after three days the opening was found to be smaller, and a week later it had entirely closed without giving rise to any bad symptoms.

CASE OF EXTREME SENSIBILITY TO ARSENIC.

Mr. W. E. HARDING, of Shrewsbury, related the case of a lady who came to him on account of severe pain in a lower molar. Finding the pulp exposed he applied very carefully a minute portion of Baldock's nerve-killing paste, covering it with cotton wool and sandarach. Next day her doctor called upon him and inquired whether he had not been using arsenic to the patient, since she had symptoms of arsenical poisoning, viz., acute gastritis and a rash. A remarkable feature in the case was that she had suffered in a similar manner three times previously, the poison having been applied once before by a Dentist and twice prescribed by medical practitioners. She was ill on this occasion for about a fortnight; the rash resembled that of measles, but was slightly raised, and was followed by desquamation. Although the cavity was close to the gum this was not affected in the least. The doctor had at once removed the dressing, but when the patient returned the nerve was found to be entirely destroyed, and the cavity was filled without further trouble.

The PRESIDENT remarked that it was important that patients possessing such idiosyncrasies should mention them when they came to be treated. He had once very nearly lost a patient from hæmorrhage owing to an omission of this sort, and any one discovering these peculiarities should always impress the necessity of doing this upon the patient.

Messrs. Roberts and Woodruffe were elected to audit the Treasurer's accounts for the past year.

The PRESIDENT then called upon Mr. COLEMAN to read his paper on

ECONOMICAL PROCESSES OF PREPARING AND ADMINISTERING NITROUS OXIDE.

After reminding his audience that from the time of the first introduction of nitrous oxide as an anæsthetic into this country he had occupied himself with devising means for

economising it, Mr. Coleman pointed out the importance of economical preparation and administration of the gas in the case of charitable institutions and large consumers generally. The one item of nitrous oxide cost the Dental Hospital of London over £70 a year.

The usual method of preparation was by the decomposition of nitrate of ammonia by heat; one pound of the salt, costing 1s. 4d., yielded about twenty gallons of gas, the cost of heat, purifying materials, apparatus and labour, having to be added to the price of the material. Of the other known methods of obtaining the gas the only one which gave it pure enough for Dental purposes was the action of dilute nitric acid on zinc. The gas thus obtained was contaminated with some of the higher oxides of nitrogen, but the amount of these could be diminished by keeping the flask containing the zinc and acid cool, and they could be entirely removed by a proper arrangement of wash-bottles. As a plan for making nitrous oxide alone this method would be extravagant, since nitric acid and zinc to the value of 1s. 4d. would only yield six gallons of gas; but by treating the residual nitrate of zinc with sulphuric acid, the nitric acid could be recovered and sulphate of zinc obtained, which was a well-known article of commerce, selling at 35s. per cwt. By making this salt the main object of the manufacture, he believed that the gas might be obtained as a by-product without cost, and might probably be sold in the liquid form at from 1d. to 1½d. per gallon.

Passing on to the second part of his subject, viz. economy in administration, Mr. Coleman referred to the earlier attempts which had been made by himself and others to save and purify the expired gas by passing it over lime or caustic alkali. But it was soon found that these complications were unnecessary, and the plan now generally in use was adopted, of allowing the first portions of expired air and gas to escape, and then, when most of the air had been removed from the lungs, closing the expiratory valve and making the patient respire the same portion of gas over and over again.

But he believed that if all the products of respiration were saved during the whole period of administration of the gas, the latter might be regained by conducting it into a closed vessel, containing a certain amount of water, in which a little caustic potash had been dissolved. This would fix the carbonic acid, the nitrous oxide would be absorbed by the water, and the remaining air would then be allowed to escape. By the application of heat the nitrous oxide could be driven off from the water and re-collected in another gasometer. The process was much facilitated by reducing the tempera-

ture of the water as low as possible in the first instance and by agitating the vessel containing it. It would be attended by some expense, but might probably be found to pay in the case of large institutions, and where circumstances were favorable for its application.

The PRESIDENT remarked that Mr. Coleman was so well-known as a thorough master of the subject of anæsthetics, that he felt sure the suggestions he had made would command attention. With regard to his process for making gas, he would remind Mr. Coleman that it was very rare to find zinc pure; it frequently contained arsenic, and this might prove a dangerous impurity.

Mr. STOCKEN thought that Mr. Coleman had scarcely made sufficient allowance for the cost of labour in his somewhat complicated process, and also called attention to the fact that zinc was a metal which fluctuated a good deal in price, and any extra demand might enhance this considerably.

Mr. BRAINE and Dr. STERNFELD made some observations with reference to deaths which had occurred under nitrous oxide, to which Mr. Coleman had incidentally referred in the course of his paper. Mr. Braine thought the best remedy when dangerous symptoms supervened was nitrite of amyl.

Mr. CUNNINGHAM gave an amusing description of his early experience in the manufacture of gas. He thought all Dental students should receive some practical instruction in the best methods of making it. No doubt it was generally cheaper to buy it, but it was not always easy to get a regular supply, and he now made his own with no trouble or difficulty.

Mr. COLEMAN replied that arsenic, if present in the zinc, was easily separated from the gas. He thought a fall in the price of sulphate of zinc more likely to follow the adoption of his process than a rise in the price of the metal. It could, however, only be carried on profitably on a large scale and on strictly commercial principles. So also the question of saving and repurifying the gas was one which affected large institutions, and not private consumers; but he had great hopes that this also might in time be brought into practical operation.

After the usual vote of thanks the meeting was adjourned.

ODONTO-CHIRURGICAL SOCIETY.

ORDINARY MEETING, HELD 10TH NOVEMBER, 1881.

JOHN SMITH, ESQ., M.D., F.R.C.S. President, in the Chair.

THE minutes of the annual meeting having been read and approved,

Frank A. Huet, L.D.S.I., 120, Oxford Street, Manchester, was balloted for, and duly elected a member of the Society.

On the motion of the President, David Hepburn, Esq., L.D.S. Eng., was unanimously elected an Honorary Member.

The following gentlemen were then nominated for membership:—William Henry Key, L.D.S. Glas., 14, West Parade, Rhyl, N. Wales; Thomas Gaddes, L.D.S. Eng, and Edin., 46, Seymour Street, Portman Square, London; John Stirling, L.D.S. Eng., 32, Fort Street, Ayr; and John Urquhart Crichton, 7, Charlotte Street, Perth.

The Library Committee submitted their report, which was approved, and ordered to be printed.

In terms of Law XVI, notice of motion to alter law relating to Hon. Members, having been read by the Secretary, it was, after conversation, agreed to remit to Committee to draw up a new law embodying the views expressed by members.

The Secretary then submitted proposed alteration of Law XIV, to the effect that, after the words, "From the Secretary," should follow, "Three to form a quorum."

PRESIDENT'S ADDRESS.

THE PRESIDENT then read an Address on "Scientific Enquiry," which we publish in full in another column.

On the motion of Mr. CAMPBELL, a hearty vote of thanks was accorded to the President for his admirable address.

THE ENDOWMENT OF RESEARCH IN DENTISTRY.

Mr. Whitehouse's paper, read March 11—"On the Endowment of Research in Dentistry"—was then taken up; and a conversation ensued, in which Messrs Macleod, Campbell, Finlayson, Platt, Wilson, and the President took part—the conclusion arrived at being—"That Endowment of Research was only useful in exceptional circumstances, that these circumstances did not, in the meantime, exist in the Dental profession, but that the end desiderated by Mr. Whitehouse might possibly be gained by the formation of a

Scientific Committee, whose duty it would be to investigate into the merits of 'filling materials' submitted to them, and that from this Committee should come a honorary reward, which would stamp the best filling with an unbiassed and official imprimatur, and thus secure it the confident and hearty acceptance of the profession, which would be the best reward to an inventor or discoverer." The following gentlemen, viz. Messrs Wilson, Finlayson, Matthew, and Macleod, were appointed a Committee to give practical effect to this finding, by drawing up a basis of scheme for the formation of such a Committee, the same to be submitted for the Society's approval at next meeting with a view to its adoption, and, if possible, securing the co-operation of the sister Society.

OXYCHLORIDE FILLINGS.

The Secretary then read "Notes on Two Cases in Practice,"—by G. RANKINE BROWNLIE, L.D.S. Eng., Glasgow: "A Suggestion regarding Oxychlorides." Some years ago, having been unable from want of light to use gold for a cavity in a first molar opening, partly on the masticating surface, but chiefly towards the second bicuspid, and extending quite down to the level of the gum, I used instead white cement, and instructed my patient to return during the summer months, when we could command a better light. On seeing it again, some six or eight months afterwards, the filling remained intact, quite unworn, and with no appearance of surface-wasting at any point. Being pressed for time, the filling with gold was again postponed. In this way I have had the opportunity of seeing it at intervals for six years. The last time my patient called was on the eve of a change of residence, and my interesting and promising filling was subsequently lost sight of. The filling was made from a fresh packet of material and the blue shade of powder (letter E, Ash's Rock Cement, I believe). In another instance I was called on to remove two osteo fillings, and replace them with gold. Having cleared out the cavities, my patient remarked, "What faithful fillings they have been; it is over ten years since they were put in." By questioning, I was unable to find any doubtful feature in the statment. They were filled while the family were living in the country, and they had been over ten years living in town. One of these fillings was in no way depreciated, but the tooth carrying the other was beginning to discolour; and, on cutting it out, the junction of tooth and filling was at one point defective. The blue shade of powder had been used in this case also, and my patient remembered that the bottle

from which the filling was taken was full. The cavities were interstitial, upper central and lateral, and quite clear of the gum. With such cases before one, it seems as if careful research must sooner or later enable us to command, in a majority of cases, that which is at present an occasional and accidental occurrence. In the latter case, the result was *not* due to any idiosyncrasy of the patient, as similar fillings put in at a later date were clearly depreciated. The fact that fresh material seems to have been used in both cases (and possibly newly-made material), tempts me to believe that the cause of the early failure of oxychlorides is to be traced to some depreciation in the materials, through keeping them in the form of powder and liquid. I would respectfully suggest that those who manufacture for us be asked to make up the material in very much smaller parcels, using bottles of the very smallest size, and containing as much as would serve for, say two or three fillings only. Should this plan prove successful, no operator would grudge the increased charge to remunerate the makers for the extra trouble the proceeding would entail. These small quantities could be made up in dozens; and if kept sealed and dark till wanted, I verily believe that early failure of oxychloride as a filling would be much less common.

OSTEOMA OF UPPER MAXILLA.

Mr. FINLAYSON asked permission to introduce a young lady who was in waiting, and from whose upper jaw Mr. Annandale had removed a hard osseous mass, which, as would be seen from the models on the table, was causing considerable enlargement of the cheek, and consequent disfigurement of the face. Mr. Finlayson said the growth had been going on gradually for twelve years under his own notice, and had not at any time caused any pain to speak of—the patient's attention being first drawn to the size of the right cheek by her friends. Two examinations had been made during that period to ascertain whether it was cystic in its character, but no fluid was found. Five months since it was determined to remove it, and Mr. Annandale did so successfully, using the chisel and mallet. The operation being conducted through the oral cavity, no external wound was caused. Mr. Annandale pronounced the case one of osteitis, such as is occasionally met with on the long bones and elsewhere. He is of opinion that it will not recur. The wound healed by first intention, and the result is quite satisfactory. Mr. Watson has prepared a microscopic section of the mass, a portion of which, with the models of case, Mr. Finlayson presented to the Museum. Age of patient 25

years. The young lady was then introduced, and an interesting comparison instituted between the casts and the present aspect of the face.

ODONTOMES.

Mr. Finlayson also brought before the meeting a very remarkable odontome (in sectio), which he had been fortunate in receiving on loan for their inspection from Mr. Annandale. The tumour had been removed from the jaw of a young woman in 1873; and as the Professor had published a paper descriptive of the case in the 'Edinburgh Medical Journal,' for that year, Mr. Finlayson did not feel called on to inquire too particularly of that gentleman into its history, but members present could easily obtain access to the volume, where he had no doubt they would obtain all the information necessary regarding it. It might be mentioned, however, that its size and weight are as follows:—

Greatest length	1½ inches.
„ breadth	1¼ „
„ thickness	$\frac{7}{8}$ inch.
Weight	300 grains.

Mr. Finlayson would take an exact copy of it, as requested, in white vulcanite, and deposit it in the Museum, and would also ask Mr. Annandale's permission to have one or two portions removed from the divided surfaces for microscopic section. The density of the mass he had not been able to fix, but it was quite as dense as dentine. He also submitted for inspection models of the mouths of the Aztecs, and various other abnormal curios, which he had much pleasure in handing over to the Museum.

THE MAXILLÆ OF THE RODENTIA.

Mr. WILSON exhibited the skull of the bandicoot of India (*Mus giganteus*), and drew the attention of the members to the enormous development of the sockets of the lower incisors. In the common brown rat (*M. decumanus*), the socket extended as far back as the base of the coronoid process, showing on its buccal surface as a slight tubercle; while in *giganteus* it was continued much further back, and terminated as a strongly-marked process, which projected obliquely upwards and backwards from the buccal surface of the ramus at the anterior part of the base of the condyloid process, from which its free portion was separated by a wide deep groove. He need scarcely say that this species was not to be confounded with the Australian bandicoots, which belonged to the Eutomophagous Marsupial genus *parameles*. He also exhibited two inferior maxillæ of the common rat—

one full grown, the other comparatively young—which, he thought, illustrated very beautifully the growth or development of the jaws. In this genus of Monophyodont Rodents, and in all the allied genera having *rooted* molars, these teeth and their alveoli continued unaltered in size, while the ramus and its processes developed backwards—the subalveolar portion of the body downwards, and the anterior portion of the body carrying the scalpriform incisor forwards (this latter tooth steadily increasing in size as the animal aged). The chief change was in the ramus and its appendages, and in the subalveolar portion, these being associated with the increasing muscular development of the owner. In man the development of the jaw backwards is marked by the gradual addition of the permanent molars; while the mesial growth was almost nothing, owing to the junction of the two halves at the symphyses during the first year. As to Mr. Coleman's theory of the interstitial growth of the maxillary bones, as enunciated in his recent work on 'Dental Surgery and Pathology,' he thought it based on a too exclusive consideration of human anatomy, or, to speak more correctly, pathology. The same cause which acts in man must also do so in at least the other mammalia; and it would require some ingenuity to square the theory with such facts as the normal non-eruption of certain teeth in some species (the narwhal, for instance), as well as the common occurrence of certain teeth in the series, which, in many species, never met with their antagonists. As familiar examples of this, he need only cite the front three premolars in the dog, and the first premolars in most of the carnivora, and in some of the rodents.

SPECIMENS.

Mr. G. W. WATSON exhibited two very interesting pathological specimens of teeth extracted by Mr. D. Marshall of Stirling, and presented to the Museum. (No. 1), that of a second or third right upper molar, carious on its crown, the general appearance of which is very extraordinary. The whole of the roots are united by cementum, the mass of the tissue being largest at the radical extremities, and exceeding considerably in size that of the crown of the tooth, making its extraction a matter of some difficulty. A surgeon had attempted its removal, but failed; and it was eventually extracted by the donor, after using considerable force. The apex of the tooth is somewhat quadrilateral in form, and is hollowed out into a large excavation. Numerous canals perforate the cementum, which has evidently been very vascular. (No. 2), 3rd lower molar, right, to the mesial

surface of which is attached, by congenital union, a malformed supernumerary tooth, which had caused great pain by pressing on the adjoining second molar tooth, thus necessitating its removal.

The SECRETARY, on behalf of Mr. Huet, presented to the Museum the casts of a very interesting case of enlargement of the maxillary tuberosities.

SOCIETY OF LICENTIATES IN DENTAL SURGERY, GLASGOW.

THE third annual business meeting of this Society was held in the rooms of the Society, Anderson's College, Glasgow, on the evening of the 9th November. There was a large attendance of members, the President J. R. Browlie, Esq., occupying the chair.

The reports of the Secretary and Treasurer having been submitted and approved, the meeting proceeded to the election of Office-bearers and Council for the ensuing terms. The following gentlemen are now the Executive of the Society:

President—J. R. Browlie, Esq.

Vice-President—W. S. Woodburn, Esq.

Treasurer—John Melville, Esq.

Secretary—Donald Cameron, Esq.

Editor of Transactions—John Foulds, Esq.

Curator and Librarian—A. B. Young, Esq.

Council—James Cumming, Esq., W. H. Gray, Esq., Benjamin Sutherland, Esq., William Lang, Esq.

The meeting then went into committee on the constitution and rules of the Society, which were considerably improved and enlarged.

In consideration of the flourishing financial condition of the Society, the Council were instructed to purchase a selection of the more rare and valuable books interesting and useful to the members of the Society, and a suggestion that the rooms should be opened for a few hours on a suitable evening every week for the purpose of providing a place where the members could meet to enjoy mutual conversation, compare notes, &c., was met with marked approval, and the Council was instructed to make the necessary arrangements.

The PRESIDENT announced that he had the promise of several papers from members, and as the interesting paper

on "Salivary Calculus," read by Mr. Melville at the last meeting, had yet to be discussed, they might look for a busy and profitable session.

A hearty vote of thanks having been accorded to the President the meeting adjourned.

Dental News.

DENTAL HOSPITAL OF LONDON.

ANNUAL DINNER OF THE PAST AND PRESENT STUDENTS.

THE annual dinner of the past and present Students of the Dental Hospital of London was held on Friday, December 2nd, at St. James's Hall, Mr. Edwin Saunders in the chair. There was a very good attendance, numbering about a hundred in all, and including, beside the past and present students, the medical committee, and the staff and lecturers of the hospital.

After the usual loyal toasts the CHAIRMAN rose to propose "The health of the Past and Present Students." He said that at this dinner, which he trusted would continue as an annual celebration, those who had completed their studies were able to renew the friendships of their student days. In meeting together in the hospital for work they were drawn towards one another in bonds of what might become lifelong intimacy. Again, such institutions as the Dental Hospital of London established a good understanding between professor and pupil, and afforded the latter many opportunities for advancement. And with regard to the institution itself they looked upon it as their alma mater, just as a man thinks of his mother as something apart from womanhood, and feels a sort of Madonna worship for her as one who is a little lower than the angels, believing her to be the best possible, and refusing to judge her by relative standards. Not that the London Dental Hospital need fear any such comparison, as it was without its equal; and during the recent International Medical Congress showed that it could hold its own against any of its contemporaries, either in the old or the new world. It was well situated for light, and in a professional aspect was admirably fitted for its purpose.

Mr. WILLIAMSON, in replying as an old student, said that it was a great cause of thankfulness to him to have had officers who endeavoured by their example and teaching to make them worthy members of their profession. He would refer especially to Mr. Hepburn, who was truly a power in the profession. He remembered well the motto which Mr. Hepburn always tried to impress upon them, viz. "Do the right thing and bide the result," and this same motto he would hand on to the present students.

Mr. HERN, in replying for the present students, expressed his gratitude to the Chairman for the kind and substantial interest which he had always shown in their welfare and advancement, and thanked the staff, the lecturers, and the Dean, for the ready and generous manner in which they always responded to the students' very numerous and often, he feared, importunate requests for assistance. They (the students) had always respected their demonstrators before, but since the Congress, when they had the opportunity of judging and comparing for themselves the relative merits of transatlantic work with that taught in their own school, they felt they had greater reason than ever to be proud in the possession of such operators as Mr. Claud Rogers and Mr. John Ackery.

Mr. UNDERWOOD proposed the toast of "The Dental Hospital and Staff." In the course of his remarks he said that twenty-three years ago a movement was begun which had produced most momentous results, and that was the establishment of the London Dental Hospital, a step which rendered possible the instruction of the future representatives of the profession. With the assemblage around the table that evening of so many who owed their success in life to their Dental Hospital studies, it could well be understood what the feelings of the promoters of that scheme were. With regard to the staff, the students now had advantages which in his young days were not thought of, and he was sure that the great sacrifice of two or three hours a week to teaching that the staff of the hospital made, would be fully understood by those past students who were in practice.

Mr. ALFRED HILL, in replying for the staff, said that he was sure that as a body they endeavoured to perform their duties to the best of their ability. If they required an incentive to further energy they could very easily obtain it in more directions than one. And no one need look further than their Chairman that evening for an example in this matter. From the very first, when Mr. Saunders was elected one of the trustees of the institution, he had shown all in the association a good example, for his time, consideration,

influence, and material assistance had all been contributed, and he (Mr. Hill) took this opportunity, on behalf of the staff, of thanking Mr. Saunders for his untiring efforts for the maintenance of the Dental Hospital of London in full efficiency. They might also obtain incentive, if it were necessary, from the remembrance that their hospital was a public institution, and as such was under the scrutiny of the public. Again, they might find a stimulus to sustained and energetic action in the fact, of which they all felt proud, that their hospital was the centre of attraction for all practitioners of other nations and countries visiting the metropolis. Only a week since he had the pleasure of conducting a brother practitioner (an American gentleman residing in St. Petersburg) over the hospital, explaining to him their *modus operandi*, and opening up to him the objects they had in view. He had come to make these inquiries with the purpose on his return to St. Petersburg of laying his information before his brethren in the profession there, who were about to commence a Dental hospital in that city, and proposed to found it on the basis of the Dental Hospital of London. These incidents made the staff anxious to fill their various offices to the satisfaction of all with whom they were associated, and with an experience ripening and ripened as the years passed on they desired to place such knowledge as they had acquired at the disposal of those whom it was their office to instruct. As a staff they had a quiet, but very suggestive creed, in which they all implicitly believed, namely, that the solidity of the entire body was in exact proportion to the amount of cohesion between the separate particles. Up to the present they had worked together in perfect amity; and no one of their number had been evil intentioned or bad mannered enough to throw the apple of discord amongst them.

Mr. CARTWRIGHT, in proposing "The Health of The Medical School," said that the success of a school depended upon the mode of instruction given in that school. As he was one of what might fairly be styled the ancient Britons, he had good reason to be proud that many of those pupils who were under them in the hospital had not only proved themselves most assiduous and exemplary in that capacity, but had turned out to be successful practitioners. He had been glad to see that at the late International Medical Congress papers were read by two gentlemen, old students at the hospital, which proved of exceptional interest and merit, and commanded the attention of the whole section. Changes were always taking place in society, and with students this was notably the case. What was in his time

well done was particularly well done now. They had more work to accomplish, whether at the school or college, and to meet these requirements it had been found necessary to supplement the work of the lecturers by adding demonstrators and a medical tutor, the wisdom of which step was made very manifest by the results of the examinations at the Royal College of Surgeons.

Mr. C. S. TOMES, in replying, said the lecturers enjoyed many advantages; they were all subject to the firm discipline of their Dean, whilst he himself and those who lectured in the summer had the benefits of early rising. Whether or no lectures were the best method of instruction might be perhaps questioned, but he was there treading on dangerous ground. However, he was glad that in coupling his name with the toast they had given evidence that in their mind at least there was no manner of doubt.

Mr. ALFRED WOODHOUSE next proposed "The Health of the Chairman." In the course of his remarks he said that forty years ago, when he first began life as a Dentist, he had very few of the advantages which were enjoyed at the present day. Yet he was particularly fortunate in being articled to Mr. Isaac Sheffield, who deserved to be very warmly remembered there to-night. Among the privileges which the present students enjoyed was the good light they had for operating at Leicester Square as compared with the time when the hospital was in Soho Square. For this they were largely indebted to the munificence of their Chairman. Mr. Saunders had also been a trustee of the hospital from its foundation, and by his continued efforts and devotion and his many noble gifts he had raised the character of the institution, and indeed of the whole profession.

The CHAIRMAN, in responding, returned thanks to Mr. Woodhouse for the praise he had so graciously accorded to him, and to the company for their very hearty reception of the toast. When he was asked to preside, he could not but remember how ably the chair had been filled on former occasions by those who were perhaps more intimately associated with the students than he was. It was, however, a great pleasure to him to preside, for such occasions gave rise to thorough fraternisation on the part of the past and present students.

Mr. F. CANTON proposed "The Visitors." He said on an occasion like this, which was pre-eminently of a social character, they could not expect a great many, but he had no doubt that they would rather be their visitors here than in another place.

Mr. W. H. MILLES replied.

The thanks of the company were then accorded by Mr. FRANCIS KEN UNDERWOOD to Mr. David Hepburn and to those gentlemen who had assisted him in the carrying out of the musical programme, which was an exceptionally good one. Most of the vocalists were members of the Dental profession, and included, amongst others, Messrs. David Hepburn, F. Canton, Arther Underwood, Alfred Smith, and H. G. Blackmore.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following Office-bearers have been elected for the ensuing year:—*President*—Francis Brodie Imlach; *Secretary and Treasurer*—Joseph Bell; *Librarian*—David Wilson, M.D. *Dental Examiners*—Patrick H. Watson, M.D.; Francis B. Imlach; H. D. Littlejohn, M.D.; John Smith, M.D.; Andrew Wilson, L.D.S.; and George W. Watson, L.D.S.

APPOINTMENTS.

BENHAM, G. A. C., has been appointed Honorary Dental Surgeon to the Leeds Public Dispensary.

STOREY, J. Chas., L.D.S.I., of Hull, has been appointed Honorary Dental Surgeon to the Port of Hull Society's Sailors' Orphan Home.

Obituary.

PETER WESLEY SAMUEL, L.D.S. Eng.,
OF STOCKTON-ON-TEES.

WE record with regret the somewhat sudden death of Mr. P. W. Samuel, of Stockton-on-Tees, which occurred on Monday, November 14th. Though never of very robust constitution, Mr. Samuel was in the enjoyment of his usual health and able to perform his ordinary professional duties almost up to the day of his decease. He was out for the last time on Saturday, the 12th ult.; a few hours after his return he was seized with paralysis, the next morning he lost consciousness, and died without again recovering it, within forty hours of his first seizure.

Mr. Samuel, who was only in his forty-seventh year, was the son of the Rev. Peter Samuel, a Wesleyan minister, who was at one time stationed at Stockton. He was articled for three years to the late Dr. Dewar, a well-known Surgeon-Dentist residing at Glasgow, and on the conclusion of his term became assistant to Messrs. W. and A. Fothergill, of Darlington, by whom he was in 1866 taken into partnership. He subsequently obtained the Dental licence of the English College, and settled at Stockton, where the practice of the firm was carried on by him until dissolution of partnership in 1873. Since that date Mr. Samuel had practised on his own behalf, and his courteous manner and undoubted skill in practice combined to gain for him a very large circle of friends and patients, amongst whom the news of his sudden death has created a very painful impression.

Correspondence.

[We do not hold ourselves responsible for the opinions expressed by our Correspondents.]

ANOMALOUS EFFECTS OF NITROUS OXIDE GAS.

To the Editor of the 'British Journal of Dental Science.'

SIR,—In your issue of November 15th Mr. T. H. Coleman, of Wrexham, gives two cases of obstreperous behaviour of two patients under the influence of nitrous oxide gas.

The first patient he states took the gas "after some considerable persuasion." Now, I think it is very possible that having been induced to take the gas with reluctance, his mind was impressed with a feeling of repugnance, which did not leave the brain when he became unconscious, and probably he was *dreaming* of some situation in which it was necessary he should make a determined resistance. The same explanation will most likely apply to both cases. I have used the gas ever since its introduction into England, and have had a variety of experiences. Generally I have found that where the patient was thinking of something special before the administration, the same train of thought was continued and *realised* in the form of a dream. I could give many cases to confirm this view, but they would take up too much of your valuable space to narrate. It is very curious that for the first year or two after I began to use the gas, most

people dreamt they were on the railway going at a tremendous speed, and some that they were drowning; in the latter cases there was a considerable amount of uneasiness, in fact struggling, which their endeavours to save themselves from supposed drowning occasioned.

It is very rare indeed that I hear of or see any of these unpleasant cases now. For some years at first I used the nitrous oxide gas made by Messrs. Coxeter, but now I get it direct from G. Barth and Co. Whether this has anything to do with the now almost entire absence of disagreeable symptoms I am not prepared to say.

I am, &c.,

JOSEPH J. RITSON, L.D.S.I.

Beckenham.

MONTHLY REPORT OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON,

FROM NOVEMBER 1ST TO NOVEMBER 30TH, 1881.

Extractions	{ Children under 14	462
	{ Adults	797
	{ Under Nitrous Oxide	444
Gold Stoppings		174
White Foil ditto		7
Plastic ditto		519
Irregularities of the Teeth		93
Miscellaneous Cases		397
Advice Cases		161

Total..... 3054

HERBERT G. BLACKMORE,

House Surgeon.

MONTHLY REPORT OF CASES TREATED AT THE NATIONAL DENTAL HOSPITAL,

FROM NOVEMBER 1ST TO NOVEMBER 30TH, 1881.

Number of Patients attended 1432

Extractions	{ Children under 14.....	396
	{ Adults.....	598
	{ Under Nitrous Oxide	126
Gold Stoppings		48
Sheets of Gold used, independent of Pellets.....	50	
Other Stoppings		302
Advice and Scaling		178
Irregularities of the Teeth		42
Miscellaneous.....		250

Total operations 1940

JOHN S. AMOORE,

House Surgeon.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Office, 11, New Burlington Street, London, W. by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
3. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
4. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. and A. Churchill, 11, New Burlington Street, London, W.
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ERRATUM.—In our last issue, p. 1131, line 10 from top of page, for “plate” read “palate.”

ANSWERS TO CORRESPONDENTS.

- E. PALMER, W. MARSH, J. SMITHSON, L.D.S.I., and others.**—We have tried to deal fairly and without prejudice on the subject. It would not be advisable, in our opinion, to discuss it at greater length or to publish any further letters.
- “PRACTITIONER.”**—The subject has not attracted much attention as yet in England, but is treated very fully in a recent number of the ‘*Gazette Odontologique*.’
- “L.R.C.P.”**—Consult the ‘*Medical Register*.’

Communications have been received from Messrs. J. C. Storey (Hull), W. Marsh (Colchester), A. F. Peacock (Stockton-on-Tees), J. Williams (Walsall), C. Ash & Sons (London), Edwin Palmer (Sevenoaks), Wm. Marsh (Colchester), H. B. Moseley (Leeds), George Ward (London), Wm. Simms (Manchester), House Surgeon Dental Hospital of London, Gurnell Hammond (London), Secretaries of Odontological Society, John Foulds (Glasgow), J. J. Ritson (Beckenham).

BOOKS AND PAPERS RECEIVED.

‘*Lancet*.’ ‘*British Medical Journal*.’ ‘*Medical Times and Gazette*.’ ‘*Pharmaceutical Journal*.’ ‘*Johnston’s Dental Miscellany*.’ ‘*Dental Record*.’ ‘*Specialist*.’ ‘*Vierteljahrsschrift für Zahnheilkunde*.’ ‘*Le Progrès Dentaire*.’ ‘*Glasgow Medical Journal*.’ ‘*Recherches sur l’Evolution du follicle dentaire chez les Mammifères*, par les docteurs Ch. Legros et E. Magitôt. ‘*Chemists’ and Druggists’ Diary for 1882*.’

NOTICE.—We desire that it may be clearly understood that our pages are open to all for free expression of their views on matters connected with our profession. We only ask for terseness of expression and MODERATION IN TONE.

When otherwise unobjectionable, difference of political or other opinion will never be regarded by the Editor as a disqualification for the admission of any communication to the pages of the **BRITISH JOURNAL OF DENTAL SCIENCE**.

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